THE FOUNDRY

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The Bronze Door at the National Capitol.

THE recent centennial celebration of the laying of the corner stone of the Capitol at Washington has revived many memories of the founders of our Republic, and our enterprising American press have attempted as far as possible to take advantage of the occasion to furnish their readers with more or less very interesting matter relative to its erection. We reproduce here a good illustration of the celebrated Rogers bronze doors leading to the main entrance of the Capitol.

On it are designs of high relief representing events in the life of Columbus, and the discovery of the American continent. The door is nineteen feet high, and nine feet wide, and is folding or double. It is within a bronze casing, on which are emblematic figures of conquest and navigation in the four quarters of the globe. It is constructed of solid bronze and weighs 20,000 pounds. There are nine panels in which the scenes are arranged in regular order, beginning with the examination of Columbus before the Council of Salamanca and following with his departure from the Convent of La Rabida to visit the Spanish court. Then are shown the "Audience at the court of Ferdinand and Isabella"; the "Starting of Columbus from Palos on his first voyage"; the "First landing of the Spaniards at San Salvador"; the "First encounter of the discoverers with the Indians"; the "Triumphal entry of Columbus into Barcelona"; "Columbus in chains," and his "Death scene." Every scene is very clearly and effectively delineated. Between the panels and on the sides and the top of the door are sixteen small statues of the eminent contemporaries of Columbus, together with ten projecting heads of the historians of his voyages; and on the transom arch is a bust of the great navigator, beneath which the American eagle spreads its wings. The door was modeled by Randolph Rogers in Rome, in 1858, and cast in Munich in 1860, by F. Von Muller. Its cost was $30,000.

These fellows who go around with a cart offering to buy up old iron ought to know something about buy metallism.—*Texas Siftings.*

Molders: Past, Present, and Future.

WE often see in the "want" columns of our trade journals and newspapers where some young man advertises himself as not only being capable in all respects to fill the position he seeks, but backs up the application by saying that he holds a certificate of competency granted by one or other of the great schools of technology.

Very frequently this young aspirant is sneered at by our so-called "practical fellows," who, I am sorry to say, are only too ready to condemn all such who have had the courage to step out of the beaten tracks in the honest effort to thoroughly master their trade in theory as well as in practice.

Let us look for a moment at the course this young man has pursued to obtain this certificate, after which we will compare him with some of his detractors.

In the first place he had a sensible father, who every day suffered more or less on account of the lack of education.

This father, although an excellent workman, as things go, had been unable to get beyond the front rank of journeymanship from the fact that, like hundreds of others, he was unable to give a reason for what he was doing to effect certain results in the foundry; and oh! how many times had he seen men preferred above himself all because of the "bit of book learning" which they possessed in conjunction with the natural talents shared in common with himself.

Smarting from this, he determines that his son, who has been duly apprenticed to the trade, shall have full opportunity to develop into a good man as well as a good mechanic, and so proceeds to surround him with good influences, excites his ambition, and encourages him in all legitimate means to obtain the desired end.

He enters him on the rolls of the nearest institution of learning, technological or otherwise, where at evenings he at once begins a course of study which will enable him to understand his trade in all its bearings; and as this mode of procedure is productive of increased zeal, every day sees the foundation of a useful career growing at a pace which before had seemed impossible of realization. For it must be remembered that as the boy increases in knowledge his ambition to excel kindles to the heat which will keep him constant to his studies, insuring success in the end.

This, then, is the young man who possesses the certificate, and where is the sense or reason in sneering at him?

We will inquire into the difference between him and such shopmates as have not qualified in the lines of thought pursued by the former.

Firstly, his acquired knowledge enables him to determine the nature of the materials he works with, and by a careful analysis of such before using insures a measure of success to which the uneducated is a stranger.

Secondly, the foundry furnishes abundant opportunity for the practical demonstration of the almost numberless theories in natural philosophy, and of exploding also the several so-called mysteries which have gathered around the business of founding owing to the ignorance of the past.

And what an advantage our educated young man has over his fellows!—for, knowing absolutely what will result from certain modes of procedure, he can easily avoid all errors, and thus secure distinction and recognition; for it must be conceded that if the intelligence of the molder measured up to the magnitude of the job he undertakes to do, barring accident, he would never fail in its successful accomplishment.

Instead of sneering at the refined young man in the foundry, let us rather thank God that the ignorant father was led to do his duty by his son. And such of us as have boys of our own, let us hasten to do likewise; for, rest assured, it is only through determined effort in the right direction, by the fathers of today, that future molders will be superior to those of the past.

But I am persuaded that we have entered upon a new era: the schools are slowly but surely accomplishing their great work; and as education increases, intemperance with its train of evils recedes from view. The sot in our foundries seeks to hide his face rather than to flaunt his shortcomings.

I can with great pleasure now see the leavening influence of intelligence: these young men are the stones, as it were, which mark the march of intellect among us; and before long I hope to see molders take the place which legitimately belongs to them—the very foremost rank in the trades.

I am anxiously looking for the time when it shall not be necessary to call in the aid of an engineer to arrange for the production of castings of more than ordinary magnitude, and when, by reason of such a course as is marked out above, such does occur, then will the molder be able to command such remuneration for his labor as will secure for him the title which by rights belongs to him—the prince of mechanics.

TO APPRENTICES.

The whole of our trade is not learned exclusively in the foundry, and fortunate indeed is the apprentice of today in having for his guidance so many avenues of information other than the daily routine of the shop in which he is serving his time. Innumerable opportunities present themselves today for the young man's advancement in his trade, which did not exist when some of us were boys. Such being the case, it is surely not too much to expect that superior skill should be developed at this day when compared with times past. The business of writing on the subject of molding has until lately been monopolized by theorists, whose efforts have in the main proved failures, so far as the object for which they wrote is concerned, entirely misleading the uninitiated, and of no practical service to the workman; for the simple reason that the author has not had the practical training requisite to understand intelligently what he was writing about.

It is not to be expected that a mere observer of our trade, one who collects his data from books with ideas as vague as his own, can understand from such an apprenticeship that which a lifetime's experience in the work itself fails very often to accomplish.

True, there were some few engineers of rare ability in their own sphere who, seeing the necessity for useful and instructive manuals for the use of molders, wrote works far beyond the intelligence of most molders, yea, absolutely unintelligible to great numbers, owing to the fact that the molders were ignorant of the various branches of natural philosophy, and therefore could not understand them.

These books are only to be found in the employer's office, unused and covered with dust. During the last few years a gradual change has been taking place. We now find many of our most intelligent molders who are not afraid of publishing their opinions upon subjects relating to the trade they follow.

It used to be said that our best workmen were the least able to impart their own knowledge to others; but I am proud to say that many of our numbers have come to the front in foundry literature—conclusively refuting the above stigma.

My object in writing this is certainly not to excel as an author: that would be presumption on my part, inasmuch as my time has been spent in the foundry; but I am anxious to have a plain talk with young molders, and, if possible, help them to understand their trade, as well as their responsibilities, better, in order to qualify themselves for preferment.

There has always been more or less repugnance on the part of parents to apprentice their boys to the trade of molder, arising in a large measure from the fact that, to all appearance, it was not as clean and respectable as that of pattern-maker or machinist; and molders themselves have contributed in no small degree towards making it unpopular, lacking, as they have, a right appreciation of their calling; but, thanks to the influence of superior education, not only molders, but also the rest of the iron trades, are beginning to realize that the trade of molder is not only respectable, but that, in order to become an expert in the art, demands are made on the intelligence of the man far greater than are required to master other branches of the metal industries.

The moral tone of our foundries has improved to a remarkable extent of late, and among our molders are now to be

found some of the brightest and best men of the day—men with whom no parent need be afraid or ashamed to trust their sons.

Reverting to the subject of cleanliness, I am persuaded that if the same care was exercised to keep the foundry clean and in order as there is for the pattern and machine shops, we would hear less complaints on that head; and when we remember that the great Michael Angelo himself had to work amid the chips and dust from the stone which he so marvelously chiseled before he could accomplish the mighty works of art he has given to the world, we need not be fastidious with regard to such minor matters.

"What age shall I apprentice my son?" is a question we often hear asked by the parent. If he is to be a molder, let him not be older than fifteen years, as the nature of the profession demands that the apprenticeship shall be a long one; coming young to the work, he all the more readily adapts himself to the nature of his calling, and has ample time to go through the legitimate routine required to make a good mechanic.

Let me here observe that a great mistake is only too frequently made by the parents when their boy commences work, and the boy himself readily falls into the snare, which is to imagine that there is no further need of school and study. Avoid this common error, young man, and realize, if you can, that now is the time to apply such knowledge as you already possess, and that you need to be making constant additions to your knowledge, and preparing the mind for the increased demands which will be made on you as you march, as it were, step by step to the end of your apprenticeship. The fact that such results ensue from a certain course of action is not the whole solution of the problems which daily present themselves in the foundry; therefore let the intelligent young man who has chosen to be a molder, continue his education by pursuing a course of study at home, or better, at one of the schools of technology, in such branches of natural philosophy as are likely to be of use to him while he is learning his trade.

By so doing, a real and intelligent knowledge of the business will be acquired as he goes along, enabling him to do that which hundreds of so-called molders are unable to do, viz., to give a reason for every step he takes in the execution of his work.

Another desideratum is to cultivate the acquaintance of such of his shopmates as are upright and sober; and in all things, both in and out of the shop, let his deportment be such as will command the respect of his superiors; by so doing he will not only gain their good will and help, but will also be laying a foundation for the future, which will enhance his prospects more than he thinks for.

Of course the young man must not flatter himself that he is going to master all the intricacies of his trade without meeting many difficulties, and perhaps failures; but if after due effort on his own part he should still fail to see his way clear, let him make known his troubles to the foreman or some of the most skillful and sensible men, who will at once assist him to overcome his task, and take great pleasure in doing it.

Lastly, he must select for his companions only such as will assist him to rise, being ever ready to reciprocate their efforts in his behalf; maintain a strict integrity and determine to manfully do his share in keeping up a high intellectual and moral standard in his profession.

A FIRST-CLASS MOLDER.

Such is the title applied to many of our trade who, if their capabilities were examined by the light of modern research, would be found utterly wanting in the principles and laws which govern the art of molding.

It is not enough at this day that a man who takes to himself the above title shall be able to produce a creditable casting from the pattern given him to work from. The probabilities are that everything is found in good form for its production, the methods of manipulation having been thought out by some one in advance of him, either foreman or journeyman—not infrequently the latter.

Very many of our so-called "first-class molders" are clever only in their ability

to "catch on" or "pick up" the modes of working going on around them. Such men will have their organs of imitation well developed, and in more senses than one will rank only with the parrot, as mere copyists or imitators. Others, again, having excellent memories, can recall experiences either of themselves or others, and turn such to good account by avoiding past errors or by again adopting means which have worked successfully in the past, and thus escape present disaster.

It is not my aim to depreciate in any sense the work of men whose natural intelligence is their only recommendation, for it must be admitted that such men have been in the past great factors in foundry practice, and it is not wise to dispute their authority before examining into the ways by which they have arrived at their conclusions; for the lack of acquired knowledge creates in them the good quality of sharp wit, and their very naturalness suggests to them a mode of reasoning which, if not strictly logical, will be found in the main to come so near the truth as to command the respect of those who are more thoroughly initiated.

Pass through any one of our best foundries and note the several molders working at their respective jobs. To the casual observer everything appears to move along smoothly, suggestive of a complete mastery over all the complex and intricate problems to be solved in the construction of the several molds; in fact, it would appear anomalous to call them at all difficult when we observe the apparent ease with which they are accomplished.

But we are much deceived if we imagine that this has always been the experience of the foundry in question. On making inquiry we discover that present success is only the result of repeated trials in the past, actual failures discovering to the workman the need of greater care, or increased strength, etc., of the various parts of his mold; and it is not going too far to say that in many instances, when disaster has followed disaster, chance has come to their relief and opened up the way of success.

The only men today who can claim the title of "first-class molders" are they who, seeing the end from the beginning, pursue an intelligent course throughout the whole process of forming their molds, and are able to give a reason for every move they make.

The molder must possess constructive ability of no mean order, as demands are made upon him in this particular which call not only for sound practical experience, but for a mental development superior and only possible in such men as have determined to merit the title above mentioned, and studiously and zealously work to maintain such title. Not only ought the several branches of the trade—loam, green-sand, dry-sand, and core making—be all equally mastered by him, but also the ability to produce the molten iron for the finished mold in such mixture and condition as will best serve the requirements of the case.

How can any molder claim to be "first-class" who cannot judge of the fitness of the cores supplied for his mold, and must in all cases trust to the core-maker, whose knowledge of the matter may be even less than his own, and very naturally so, too, when we consider that, from a misconception of the value and importance of that particular branch of the trade, even green laborers are permitted to produce such cores—a simple case of the blind leading the blind, with the inevitable result of both falling into the ditch? Nor would there be any justice in the claim for excellence made by any molder skilled only in one department of his trade, to the exclusion of all the rest.

The basis of excellence consists in the association of all the branches, inclusive of the cupola (last, but not least); and it is not too much to expect in these days, when the opportunities for the acquisition of knowledge are so plentiful, that a first-class molder shall answer to the standard herein laid down.

The really first-class molder leaves nothing to chance, and, as before stated, "sees the end from the beginning," every step he takes in the prosecution of his work manifesting a previous study of the science of his business. He knows that his sand is suitable, because

along with his own experience and observations he has studied the subject thoroughly, and can tell beforehand what mixture he needs to bring the silica, alumina, etc., into correct proportion for the work in hand.

The flasks and other rigging he makes will be reliable because he will have made the necessary calculations as to the weight to be sustained and pressures to be resisted, and proportions his arrangements accordingly. The oft-repeated query of the foundry, "I wonder if this is strong enough?" never enters his mind; he knows it is.

Should it be required that a mold must be secured by weights, the first-class molder never wonders how much weight he ought to place thereon. He has made a careful study of hydrostatics and other kindred subjects, and applies the knowledge gained thereby to his every-day practice. By this means all the apparent mystery in molding is made to vanish in a manner truly astonishing to his shopmates who are so unfortunate as to have joined the "pooh-bah" association.

To sum up, ignorance is at the bottom of all this so-called mystery in the foundry. I shall be amply repaid for this writing if I awaken in molders a greater desire for knowledge than has manifested itself hitherto. It is foolish to say as some do: "Oh, my education was very limited," or, "I never went to school." To the former I say: Then finish your education now; and to the latter, Begin at once. Surely there is more pleasure in growing wiser, be it ever so slowly, than there is in remaining ignorant, only to be laughed at by the more ambitious ones around us.

To the young men in our foundries I would say, Keep up your education by constant application to study. You need all the knowledge you can get to thoroughly understand your trade. Schools of instruction are becoming numerous all over the land, and must not be despised as means for culture in the trades. In these institutions intelligent workmen may receive such instructions as will perfect their practical education and make them in every respect worthy the name of "first-class molder." Lacking the opportunities of such schools, the molder must make a school for himself. It is important to study. Where one studies is of minor importance. In these times when opportunities for learning are more than plenty, there is no excuse for ignorance. — *The Iron Founder.*

Where Iron is Sacred.

AMONG the Baralongs, a great African people, iron is a sacred object. They are expert workers in metal, which they still smelt from its native ore by the most primitive methods ever devised by man. This art was to them in former days a source of wealth, influence and power, and the legend is that when people did not know the value of the stones found in their brooks a "wise man" saw a vision. The spirit of the chief stood beside him and said, "Gather stones and burn them to make spears." The sage thought it was a dream and that the chief was hungry, so he sacrificed an ox. But the vision returned, and the chief looked sorrowful. He stood a long time, and at last said:

"My son, why do you not obey your father? Go to the river, gather stones and make a hot fire. After that you will see iron with your eyes."

The sage was greatly frightened and feared calamity, but dared not refuse. When he had made a hot fire, iron came out of it, and then he knew the chief had taken pity on his children. He told his son the secret before he died, but he was a vain coxcomb, and wishing to show his own wisdom made iron in the presence of strangers, and so the secret of the art was lost to his tribe, but they have always continued to regard iron as sacred above all other metals.—*Million.*

The Southern Foundry and Machine Works, of Fredericksburg, Va., is running on full time and will continue to do so for some time.

The Record Foundry and Machine Company, of St. John, N.B., has recently added to its molding department a new building 100x25 feet. The company is running all departments night and day.

THE FOUNDRY

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THE FOUNDRY is issued promptly on the tenth of each month, and will spare no endeavor to furnish valuable news and information to those interested professionally or incidentally in molding, melting, mixing of metals, foundry management, etc. Persons connected with any of these lines of industry will confer a favor upon the Editor of this Journal by sending him news from their section of the country pertaining to the foundry interests, particularly individual theories and experiences of practical value.

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Financial Matters in Chicago.

THE *Industrial World* takes exception in its issue of Sept. 28th, to our remarks in the Sept. number of THE FOUNDRY on the reason why Chicago at this time should not be feeling the money stringency as acutely as other sections, but the editorial carefully avoids *answering or attempting to answer* anything we said on that subject in the column and half of space he devotes to the glorification of his city. It may surprise him to know that in all he says he has the warmest sympathy of this paper and to learn that we think that the marvelous push and energy of Chicago's citizens and its phenomenal growth and prosperity are simply amazing. But all this does not alter our previous assertion that with a continuous influx of over a half a million in currency every twenty-four hours at the least, from all over this country, to say nothing of foreign nations, it is not to be wondered at that Chicago has not suffered to quite the same extent as other localities from the prevailing money famine. Outside of that we do not say that business is either better or worse there than elsewhere.

The City of the "Veiled Prophet."

THE *Age of Steel*, published in St. Louis, Mo., in one of its recent issues recites the fact that during the late financial scare the banks of that city were not visibly effected. There were no failures, no "runs" by depositors, no clearing house certificates issued, no withholding of currency against drafts and checks, no customers left to their own resources, no dropping below the legal requirements for cash reserves, no stinting of gold for the Federal Treasuries, $100,000,000 reserve and forty-three per cent. cash reserves in the worst week of the panic.

This is indeed a most flattering showing when it is considered that St. Louis is one of the great financial centres second only in the west to Chicago, and in the face of the fearful experiences of other localities some larger and many smaller than the Missouri metropolis.

Like many of the other experiences of the past few months, this one teaches its lesson. In the first place St. Louis was neither better nor worse off as far as local conditions were concerned than any other cities, but in this one respect, that its banks seem to have been in good hands. In the first place none of them failed, this created great confidence, depositors

who got "scary" and there must have been many, evidently got their cash, and the knowledge that they could get it prevented the great majority from wanting it, and from these facts alone in all probability the money was left in the bank vaults, customers were accommodated, and in St. Louis today as a result, conditions are 20 per cent. better than in some other large cities if local authorities are reliable.

This all goes to show that we are not depending on our politicians for good times and that if we were our condition would be indeed miserable.

"Penny Wise and Pound Foolish."

THE article appearing on page 53, contributed by "A Molder," while intimating that it takes the opposite side of the question to that taken in our September number by Mr. C. A. Burton, really does not, as we feel that there really is nothing in the former's article to which any informed foundry man could justly take exception, and we regret to say there is only too much truth to it.

Foundry proprietors have in numberless cases to our knowledge lost infinitely more than they have gained by their deciding to have for a foreman a man whose chief claim for recognition in that capacity lay in his power to intimidate those under him.

Foundry owners will exercise their wits to the utmost to save at times 25 or 50 cents a ton on the price paid for their pig iron, or a fraction of a cent a pound on the price paid for facings and will then hand them and other serious responsibilities over to the care of some foreman whose mismanagement in a score of ways will cost them more in one day than they can make up for by all their fine figuring in the office in one month.

An instance of this might be quoted in the case of a certain firm who had several thousand yokes to make for a large cable railway. In endeavoring to get the work out at a profit the superintendent had the best of iron flasks made and finely finished patterns that were polished every night, but inside of three weeks the brutality of their foreman, in his being permitted to exercise his slave-driving propensities to the limit, brought on an extended strike over the question of the number that should be done for a day's work, and as a result the contract had to be given up and was taken to another shop where by the exercise of a little tact and good nature the foreman got the same number of yokes that the men in the previous shop refused to make. The amusing part of it being that nearly every man who went on strike in the first shop was given employment on them in the second.

If there is a reader of THE FOUNDRY who knows for a fact that it pays to have a foreman walking up and down the center of the shop swearing and shouting at his men, as used to be done by a certain well-known foreman in a Patterson, N. J., locomotive shop, we would like to have him demonstrate it, and our columns are open to him. We think we know of some very large plants in this country though, in which the successful men—who get the most work and the best work done for the least money—are men who treat men as men and by that means simply get what they want.

May their Shadows Never Grow Less.

KILBOURNE & JACOBS Manufacturing Company, of Columbus, Ohio, will never have any labor troubles on their hands although they employ many hundreds of men. Recently they gave every one of their employees and their families a free excursion to Chicago and paid a portion of their hotel expenses at the Great Eastern Hotel while they visited the World's Fair. The train they traveled on was gaily decorated and two immense portraits of James Kilbourne, President, and H. L. Jacobs, Superintendent of the works occupied a prominent places in front of the locomotive.

Such employers make the world better and they ought to indeed feel happy at having it in their power to contribute so much to the pleasure of others.

Citizenship of a Few Months Standing Not Enough.

OUR Pittsburg correspondent whose letter appears elsewhere speaks of the praisworthy action taken by Superintendent of the National Rolling Mills, in issuing an order to the effect that no one shall hereafter be employed in that establishment who could not speak the English language or in other words "talk United States." Every American citizen should feel proud of this gentleman's action in this respect and wish that his example were more generally followed. If it were, many of the problems that confront our statesmen and thinkers would be more easily solved.

The Scrap Heap.

A strange thing happened the other day. There has been as everyone knows considerable of a reduction of wages going on all over the country, some localities being effected more than others, and some few escaping altogether.

* * *

In one of the last mentioned localities an executive officer of one of the molder's organizations fearing that the inevitable reduction would take place suggested to the molders that they, themselves, take the initiative in proposing it their employers and that pending a settlement of the financial troubles of the country the wages should have a slight reduction to be of course returned to their former figure upon the return of better times.

* * *

His idea of course was that by taking this step the molders would not be losing anything as the reduction was sure to come anyway, but on the contrary would gain much by securing their employers good will and be in a much better position to ask for the increase later on.

* * *

Of course the advice was not acted on, it was in fact not only rejected, but spurned with that haughty manner so often effected by workingmen, molders especially who have achieved a reputation for frequently doing the wrong thing.

* * *

The result—Why of course the wages were reduced and not a small reduction either, but a much larger one than would have been exacted had the proposition come originally from the men themselves with the added bitterness that it would be much harder to recover than it would have been had they taken his advice.

* * *

The men felt that in giving such advice the officer of their organization was not as solicitious for their welfare as he should be and loudly blamed him accordingly, and even now it is questionable whether they have discovered that he was their best friend.

* * *

Employers as a rule are apt to try to credit labor leaders with every disturbance that takes place in the labor world without remembering that the seat of the trouble is more apt to lie with the unreasonableness of their own employees.

Eighteen hundred and ninety three will always be noted for its business depression, but labor troubles have been fewer than in any of the years immediately preceding it, while wages have been "adjusted" to an extent that has never occurred before. With very few exceptions these reductions have been accepted by employees without serious opposition.

* * *

The cautious and well meaning man who is placed at the head of a labor organization is about as completely between the devil and the deep sea as one occupying an official position could well be, for the reason that the stubbornness and unreasonableness of those he is supposed to represent, on the one hand is only equalled by the obstinacy of the employer who refuses to meet with or discuss any grievances or complaint of his employees. At the same time no man requires more tact and ability to handle the disturbing elements so often found among workingmen (molders again especially) than he, and the thoughtful unbiased and well informed reader will concede this point without it being further enlarged upon.

* * *

That there are exceptions to the foregoing is of course conceded on all sides, but if the views and wishes of the average leader in the laboring organizations of the country could be carried out, or nearly so, we believe the condition of our workers would be greatly improved without injury to any legitimate interest.

* * *

Unfortunately, however, the agitator, the trouble seeker and disturber exercises too great an influence by playing on the passions, prejudices and ignorance of his associates and the condition of the toiler will get poorer and lower as long as the demagogue is believed and followed.

Pittsburg and Vicinity.

(*Special to* THE FOUNDRY.)

DURING the past few weeks the foundry trade in and about Pittsburg has undergone a slight impetus and while yet rather dull, business is picking up at a very satisfactory rate. The fact that much repair work is being done among the mills which require foundry work accounts largely for this, and then the fall and winter orders are appearing. The founders therefore wear a more cheerful mien than they have for many a day. This is

particularly true of Pittsburg founders, and those in nearby places are also feeling the activity that is being infused into the trade.

The Union Foundry and Machine Co. has settled the legal dispute between it and a number of its employees, by paying the costs of the suit and the wages due the men. The men were discharged by the Company and entered suit thereupon for their wages.

The Reliance Steel Casting Co., is running full and has many orders in.

Hewitt & Thomas, founders of this city, have their plant in partial operation with a reduced force. Lack of orders is responsible.

Graff's Stove Foundry, on Smallman St., was damaged by fire to the extent of $10,000 a few days ago.

The Anshutz, Broadberry Co., manufacturers of stoves, has started its works on Preble Ave., Allegheny, again, after a brief shut down.

The foundry department at the Westinghouse Air Brake Works, at Wilmerding, is working but three days a week.

The Fisher Foundry and Machine Co., Twenty-fourth and Smallman Sts., was closed down for a few days but has resumed operations.

The Scarfe Foundy and Machine Co., has a full force of men at work. They are very busy at present on an accumulation of orders They have been active all summer.

The Youngstown foundry, which makes a specialty of chilled rolls, has shut down for the purpose of making necessary repairs. Operations will be resumed very shortly.

The stove foundry of Baldum & Graham, at New Castle, has been started up after an idleness of several weeks. About 200 hands are employed there.

The Totten & Hogg Iron and Steel Foundry Co. is running busily on a number of orders received lately, among which is one for a large lathe for P. A. Lauffman & Co., of Appolo. The Company states that they find business picking up nicely.

The Girard Stove and Foundry Co., recently organized at Girard, O., has made its first cast of stoves, which were a success in every particular. The plant is fully equipped to turn out the best of products, and is now on a solid financial basis.

Supt. Jackson, of the National Rolling Mill, McKeesport, a few miles from here, has given notice that hereafter no men will be employed in the mills who have not a command of the English language. His policy may be adopted by other mill officials in this vicinity.

The Tremont Stove Works, of Wood's Run, Allegheny, is again in operation after being closed down for a period of two weeks on account of extensive repairs which have been completed. The concern employ about 100 men and has quite an amount of orders on hand.

The foundry department of the Lloyd, Booth Co., at Youngstown, O., has shut down for an indefinite period. Manager Booth says: "As soon as repairs are completed we will start up if we can get money to pay our employees. We have an abundance of first-class paper which we have taken for work but the banks will not discount it. We prefer to pay our men money and let them spend it where they please, rather than to give orders on anybody, and we would sooner remain idle than go into the order business.

There is some talk in manufacturing circles of the organization of another large Foundry Co. by some local capitalists. A charter has not yet been asked for as the project has not yet progressed that far, the prevailing dullness may possibly cause an abandonment of the plans of the projectors. The capitalization will it is understood, if the scheme of organization be completed, be quite large. A suitable site will be bought in one of the new manufacturing towns adjacent to the Iron City, and the buildings erected thereon. They will be fitted up by the most modernized machinary known to the foundry trade, and all classes of work will be turned out.

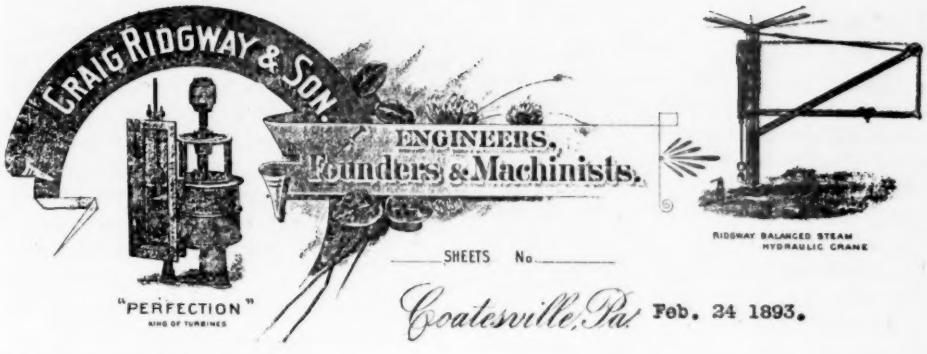
The Fire Fiend.

Emile Gerans is accused of setting fire to New Iberia Foundry at St. Martinsville, O., and is in jail awaiting trial.

Warren C. Johnson's Iron Foundry at Oskaloosa, Ia., was damaged by fire to the extent of $8,000, September 8.

The Stormont Foundry and Machine shop at Ottawa, Ill., was totally destroyed by fire, patterns, machinery and all, September 24; loss, $16,000.

The pattern shop of the Marshall Foundry & Construction Company, Twenty-eighth street, Pittsburg, Pa., was destroyed by fire September 11, causing a loss of $5,000.



Coatesville, Pa. Feb. 24 1893.

The Foundry Publishing Co.

Detroit, Mich.

Dear Sirs:-

The fact that we carry a full page in your paper shows better than any words what we think of it. If it did not pay, it most surely would not be there. We have long since passed the period of advertising simply for the pleasure of seeing our name in print. We spend our money for results. If we did not get results we would stop pretty quick.

We have long felt the want of just such a paper as yours to reach the foundry trade, both the owners and the workmen, but especially the foremen. We look to the foreman, and the man who is some day to be the foreman, as the man who will be most instrumental in having our Cranes adopted. This man will tell them in the office that if he could have Ridgway Quick-acting Cranes he would save them money. Such talk settles the office. Now to reach the shop we know of no other publication than the paper you publish. Circulars are useless because the names of the men in the shop can not be gotten and the circular gets no farther than waste basket of the office.

Yours with Regards,

Craig Ridgway & Son.

Craig Ridgway & Son write a unique but forcible letter on the subject of their advertisement. The deductions they arrive at concerning THE FOUNDRY, and the fact that as a practical paper, it is certain to always find a large constituency among the practical men of the business, could not be better said if we had said it ourselves. It shows that they know their business and that in their opinion all that foundrymen need is to be educated concerning the Craig Ridgway Crane to want it.

Foundry Testing Machine.

OWING to competition, to definite specifications and a general tendency to more accurate knowledge of the strength of materials there has developed a growing demand for the use of testing machines in all manufacturing lines of business.

The Riehle Bros. Testing Machine Company, of Philadelphia, who make a full line of this machinery, inform us that in no one direction has there been an increase of demand greater than for the iron foundry.

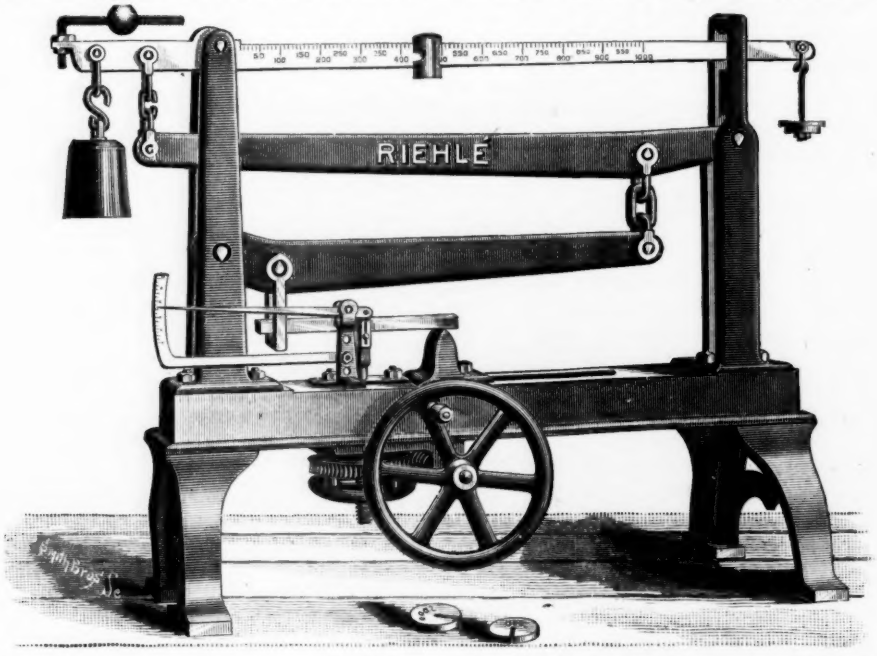
Castings are frequently ordered of a certain tensile or transverse strength per square inch, and the foundryman must know that his material meets the requirements by a practical test. Again, in experimenting with different foundry mixtures it is well to know the result of the heats at once. Sample bars are cast, say at beginning and end of heats, or of the same iron from which some special casting is made. Occasionally the grates are used and prepared for test.

Where the strongest iron with least weight of casting is a necessary item, the help of the testing machine is invaluable in giving definite and accurate knowledge of the subject.

The machine most in use is that for testing the bar transversely, and the illustration shows the latest form as constructed by Riehle Bros. Testing Machine Company, Philadelphia.

This machine is of 5,000 lbs. capacity and capable of testing bars 1″ to 1½″ square, and from 1 ft. to 2 ft. long. An enlarged form of the machine is made to take bars 4 ft. long, as many specifications now require a certain tensile strength in that length of bar. A cheaper form is also made without change of adjustment, 3,000 lbs. capacity, and made to test bars 1″ square, 12″ between supports.

The Standard 5,000 lbs. machine is generally used to test bars 1″ square, 2 ft. between supports, the specimen being about an inch longer so as to rest securely on the supports. The machine has double gear: that is, a direct nut-and-screw motion for rapid setting, and a worm gear which is easily thrown in mesh for the slow, steady, power movement. The load is weighed from one end but is doubled on the beam reading so as to represent the actual center load on specimen.



A record of tests is made and kept for comparison and reference. In addition to the actual breaking strain the machine is furnished with an indicator to show the amount of deflection before and up to the point of rupture. This is a very important adjunct as showing whether a metal has more or less toughness, or is merely stiff and brittle.

For those who are interested in foundry work and anxious to secure the best results, we feel convinced that this inexpensive ma-

chine will be found a great help in making investigations.

The firm of Riehle Bros. also make tensile testing machines, but these, as a rule, are of greater expense on account of the greater capacity. This enterprising firm is making a combined tensile and transverse machine, which will meet combined requirements, and will be placed on the market at a low figure.

The Redding Foundry at Redding, Cal., was destroyed by fire September 27.

The Death Roll.

Thomas Buckley, of the firm of Buckley & Company, iron founders, Kalamazoo, Mich., died of peritonitis, September 2.

Thomas Orr, aged 52, died at his home recently in Poughkeepsie, N. Y. He learned his trade at the old Levi Arnold foundry, now Bullard's Foundry in that city, commencing in 1856. In 1865 he lost a leg from having a heavy flask weighing five tons fall upon him from the crane, and as a consequence he was compelled to leave the foundry, and has conducted a profitable cigar business ever since.

A very sad affair ending in the death of Evan Evans occurred in Chattanooga, Tenn., September 25. Mr. Evans, who was one of the proprietors of the Emyln Foundry & Machine Works, was endeavoring to prevent a quarrel between two men when one of them rushed upon him and stabbed him three times with a large knife. The deceased gentleman was very popular with all who knew him.

New Foundry Enterprises.

Thos. Stewart will erect an iron foundry at Allegan, Mich.

T. G. Pelton will erect a foundry at Lyons Illinois.

M. Donovan is enlarging his foundry at Toledo, O.

Haines & Harvey are building a new foundry at Gibson, Ill.

The Caton Foundry & Machine Company will build a new foundry at San Jose, Cal.

Turner, Dickinson & Co. will erect a foundry 210x80 ft. at Hanson Park, New Chicago, on the Milwaukee & St. Paul railroad.

Louis Sears will build a new foundry at Ashland, O. He was formerly foreman at Myer Brothers' foundry in same town.

The Porter Radiator & Iron Company has been incorporated at Minneapolis, Minn., capital $100,000, for the manufacture of steam and hot water heating apparatus.

The Hinkle & Gaither Company have leased the foundry formerly conducted by T. L. Fairall & Son, at Washington, D. C., and start up October 15 with a force of fifty men.

Among the Magazines.

THE second edition of *The Cosmopolitan* for September brought the total edition up to 211,000 copies, without doubt the largest edition of any magazine in the world for this month. It remained for *The Cosmopolitan* to have the World's Fair treated in a single number by twelve different writers. As the exposition of 1893 must remain one of the leading events in the history of the United States, the most distinguished men were asked to prepare this magazine volume, which is destined to become valuable as one of the most perfect descriptions of the World's Fair. Among the number of those who contribute are our only ex-president, Walter Besant, the most distinguished of the English literary men who visited the exposition, and a host of others. Besides the usual fiction, including a story by Mark Twain, entitled, "Is He Living or Is He Dead," and the regular departments, *The Cosmopolitan* contains nearly 100 illustrations devoted to the World's Fair, including eleven full pages. It is pronounced one of the most remarkable of the publications yet issued regarding the Fair. It is a completely illustrated guide or souvenir, as one prefers to call it, by the most famous writers of the day, put before the reader at the price of 12½cents, and more than the equal of the books of the Fair which sell for 75 cents and $1.

Godey's Magazine for October, ready September 15, is better than ever. The contents are varied and the illustrations are up to this magazine's high standard. The complete novel this month—the feature of this publication—is by Sophie Frances Baker, and is called The Real Tom Brownson. It is strong in coloring, treatment and plot, and is brightly and interestingly told. The illustrations are by Charles T. Budd. This number also contains The Clocks of Paris, written and illustrated by Eleanor E. Greatorex; A Princess in Bohemia, a charming short story by Sewall Read; Old Prints, a sketch by John Sheridan Zelie, and A Plea for the Play-writer, by Fannie Aymar

Mathews. All the departments are universally interesting and carefully edited, and the exquisite water-color portraits are those of Mrs. Robert L. Henry and Mrs A. Shreve Badger, of Chicago. The poems are by Frederic F. Sherman, Milton Goldsmith, Harry Romaine and W. J. Lampton.

EDWARD BOK receives one of the largest personal mails in the country, a year's mail consisting of over 20,000 letters. Three fourths of these letters are from women. No part of this huge mail reaches Mr. Bok directly: it is opened by a private secretary and distributed to assistants for answer. Every letter, however, receives a reply. One of Mr. Bok's editors on *The Ladies' Home Journal*, Ruth Ashmore, who writes to girls, receives over 5,000 letters during a year.

The Century Company has bought well nigh the complete literary "out-put" of Mark Twain during his year of residence abroad, and both *The Century* and *St. Nicholas* will have serial stories by this popular humorist among the attractions of the new year. For *The Century* he has written a novel which is said to abound with humorous and dramatic incident, and in some chapters to be a revelation of tragic power. Its plot includes a most ingenious employment of science in the detection of crime. It is called "Pudd'n'head Wilson," and like "Huckleberry Finn" and "Tom Sawyer," is a story of a Mississippi steamboat town.

Looks Better.

Work has been resumed at the Filley Foundry, Green Island, Brooklyn, N. Y.

Smead's foundry at Toledo, O., has resumed after a long shut down.

The Ahrens-Ott Company, Louisville, Ky., have resumed after a shut down of several months.

F. W. Rhinelander, Jr., vice-president of the West Point Foundry Company, at West Point, on the Hudson, reports business very good, with work enough ahead to keep busy all winter.

The North & Judd Manufacturing Company at New Britain, Conn., have started their foundry again after a shut down of eleven weeks.

The White Mountain Freezer Company at Nashua, N. H., has been started up on full time again after a lengthy shut down.

The Walker & Pratt Foundry at Watertown, Mass., started up September 11 after a shut down of about two months, the longest shut down in the history of the plant, which has been in operation about forty years. The entire force has been put at work at the former wages, although at present the piece hands will not be given a full day's work.

Among the Foundries.

The St. Helena Iron Foundry will remove from Helena, Cal., to Santa Rosa, Cal.

Rohlfing Brothers contemplate moving their foundry from Waterville to Elysian, Minn.

The foundry business at Racine, Wis., is about as poor as possible.

The sheriff is in charge of the Richardson & Morgan Company's foundry, Norwalk, Conn.

Thurman & Powell, iron founders of Louisville, Ky., have assigned, but will likely continue.

The Standard Foundry Company, of St. Louis, Mo., have orders enough ahead to keep it busy for several months to come.

The Malleable Iron Works, of West Troy, N. Y., has resumed and hopes to soon have at work 600 men.

The Whitely Malleable Iron Company, of Muncie, Ind., have a contract from the Jeffries Manufacturing Company, of Columbus, O., for the manufacture of 3,000 tons of endless chains.

The Vulcan Foundry Company, of Toledo, O., will not now erect its new plant this season. While business has been good all summer, the monetary stringency has caused them to decide to postpone building.

The J. I. Case foundries of Racine, Wis. are shut down and have been so for eight weeks, the old foundry being torn down preparatory to building a new one, and work cannot therefore be resumed for many months.

The building formerly used as a foundry by Gibson & Love, Chattanooga, Tenn., has been converted into a tabernacle where revival meetings are held. Quite a conversion.

The extensive plant of Nichol, Burr & Company at Peoria, Ill., is likely to change hands. It has been shut down for several weeks and the present owners are not inclined to continue it.

The Racine Hardware Manufacturing Company having made an assignment are in very bad shape, and the same might be also said of the Hurlburt Manufacturing Company

This latter concern, however, expects to resume shortly.

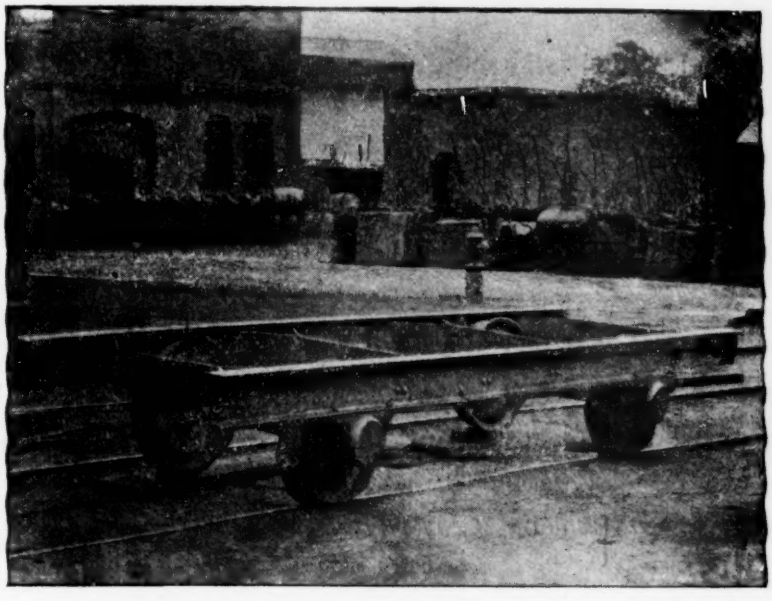
Iron has been rolled as thin as tissue paper, and as it takes 1200 sheets of the latter to make an inch when closely pressed together the toughness of good iron when carefully worked can be readily imagined.

The city of St. Louis advertised for bids for water pipe and only one bid was received from the Howard Harris Iron Company, of $24.90 per ton. The board thought there must be something wrong, as the price a short time previously was only $21. A re-advertisement was ordered and behold there were five bidders, the lowest being the Chattanooga Iron & Pipe Foundry, who secured the contract at $19.40, while the Harris Company bid $20, or nearly $5 a ton less than their bid of a few weeks previous. All of which goes to show that if the first figure had been accepted the Howard Harris Iron Company would have cleared over $20,000 in excess of what they afterwards offered to do it for, as there were 5,475 tons wanted.

The Largest Steel Casting.

THE largest steel casting ever brought into this country came in on the White Star steamer Cufic two weeks ago, and is now lying on the dock at pier 41, New York, waiting for a car to be built that can transport . The casting weighs sixty-four tons, and was imported by the Carnegie Company at Pittsburg for the manufacture of armor plates for the United States navy. It is a part of a hydraulic forging plant and measures 16.6x11.6x3.6 feet. It was made by Sir Joseph Whitworth & Co., at Openshow, Eng. It is expected that there will be considerable difficulty in getting the big casting across the river. It will probably be taken over to Jersey City on the derrick float of a wrecking company.—*Philadelphia Record.*

Japanese children are taught to write with both hands.



Something New in Core-Oven Carriages.

IN the March issue of THE FOUNDRY we published a cut of a core-oven carriage designed by Kilbourne & Jacobs Manufacturing Company of Columbus, O., to overcome the difficulty that arises in attempting to withdraw the ordinary carriage from the oven after it has been subjected to the heat of the core-oven and the journal bearings become dry from having all lubricants burned away.

This notice attracted the attention of Rice, Barton & Fales, the extensive iron

founders of Worcester, Mass., and as a result of their inquiries they gave the Kilbourne & Jacobs Manufacturing Company an order for five large cars, two of six tons capacity, one of five tons, one of eight tons and one of ten tons capacity, of the style illustrated by the accompanying halftone engraving which was made direct from a photograph.

The side rails were made of steel "I" beams with steel axles and wheels fitted with anti-friction roller bearings which never need oil and move very easily under any load. Every foundryman knows the great difficulty so often experienced in getting a heavily laden oven-car out of the oven after a night's fire, and can readily appreciate the value of an arrangement that does away with the necessity of calling up all hands in a shop and is superior to the system of gearing placed on core-oven carriages in some modern foundries.

A Stove Exhibit at the Fair.

THE Michigan Stove Company, of Detroit and Chicago, claim to be the largest stove establishment in the world. They are perhaps the largest stove advertisers in the world, and their factory, as represented in the circulars and posters which they put out is certainly of an enormous size. Claiming to be the largest in the world in a commercial sense, it was natural for them to put up the largest stove ever made as a feature of their exhibit at the World's Fair. We present herewith a reproduction of a photograph of the exhibit. A desk and room for several salesmen, to say nothing of accommodation for visitors, is provided underneath the mammoth stove. What would be the bottom plate under ordinary constructions is a canopy of textile fabric, while the stove itself has been cunningly devised out of wood and polished with plumbago, with silver-bronzed edges, so as to look like veritable iron castings with nickel trimmings. The name "Garland," the trade term under which all of the stoves of this concern are manufactured, together with the peculiar trade mark of the company, are clearly shown on the large stove, as well also as the name of the concern. Among the few exhibits of stoves which are presented at Chicago

this deservedly takes high rank, and attracts perhaps more attention than any other one to which the reader's attention might be directed.

The Industrial Value of Good Will.

THE following from the pen of C. R. Henderson, D. D., Professor of Sociology in Chicago University, was written by him for the Columbia Labor Day Souvenir, published by the Trades' Council of Detroit, for distribution during the Labor Day Parade. As the learned gentleman has made a study for many years of the industrial situation, his contributions are always interesting:

"It is hard to find something to say which is both new and true. We have enough new lies as well as old humbugs. We all wish some rag man would act as our scavenger, and cart both lies and humbugs far away. There is one thing ever old and yet young, and also worth while to talk about on a holiday (holy day), that was once set to celestial music and sung by a chorus of angles, 'Good Will to Men.' It is a good thing to have in the family; for without it a man may have a house and a cook, but not a home and a wife. Family jars never contain sweet-meats. But, postponing the sentimental, let us now talk of business.

Marshall, a high authority, says that everything that can be measured in money is a subject of political economy, the science of wealth. But friendliness certainly has a money value as well as other values. Illustration: There is a very reasonable demand in our day for arbitration to displace quarrels. This is well. It is a great advance. But arbitration has its limits. If it means loss to the owners, or starvation to the employees, it is impossible. No method of arbitration can be devised to compel men to carry on business at a loss of capital or of life. Back of all schemes of arbitration must be the spirit of order, kindness and 'sweet reasonableness,' which calms men's minds while they consider and sigh contracts. A war with England over the Behring Sea seal question would cost us more that all the seals are worth, or ever will be. Any ten ordinary lawyers or expert accountants could give us a wiser and better settlement than two million soldiers, not one of whom ever studied the matter. Why should poor men fight about sealskins which their wives can never use for cloaks? Leave fighting to cocks, crop-eared dogs and savages; we live in an age of labor, and this is the sacred day of labor. Revenge may be very sweet in the mouth, but it is bitter in the interior. A nervous, excitable woman, finding her sewing machine out of order, got angry and shook and pounded it as if it were a dog, and made it worse. Her neighbor looked the machine over patiently and in good temper, set the thing right, and illustrated the industrial value of self-possession. Horse trainers get more out of vicious horses by kindness than by beating; and calm leaders get more of employees than do hot-tempered and fighting ones. Hard epithets are very natural when we feel we are not getting our just share of the good things of life. But they roil our minds, rob us of pleasure, and put off the day of victory. For as sure as labor wins its rights, as it must, victory will come as a triumph of human reason, and not of brute force nor of devilish hate.

Why hate capitalists anyway? Are they not as much creatures of our social system as any other? Change the system by co-operation and there will be a change in solial relations. The workingmen hold the situation in their own hands. Why waste happiness and strength on useless and injurious hate?

I asked a leading labor agitator and 'walking delegate,' in Boston, why laboring men do not do more with co-operative enterprises in this country, as they do in some parts of England. He said: 'They are afraid of each other, and are jealous of having any of their fellows as bosses.' Now, co-operation means money in the pocket and a better quality of goods for what is spent. If it be true that jealousy and distrust are in the way of successful operation, then these inner

parasites need a vermifuge to expel them from the system.

There are two ways out of the wages system, and only two, so far proposed: Voluntary co-operation as at Rochdale, and compulsory co-operation as proposed by socialism. Much can be said for both methods, but hate between class and class will help neither. In one case we need to put our own hands and capital together and trust each other, as W. D. Howells has said, to quit fighting (strikes) and go to voting.

It is said by some men of science, that we are descended from apes and wild beasts. This is no place to discuss such learned matters. But one thing is certain—it is better to be descended from monkeys than to be going toward monkeys. It is better to be grandsons of beasts than grandfathers of beasts. If it is ever made out that we have come up from such ancestry, and are traveling further away all the time, we ought to be glad of the latter part of our history at any rate.

Some people seem to think we are going the other way. There is truth in the more discouraging way; the tiger is not quite dead in any of us. Just a little taste of blood, and something worse than bear and tiger rises up in us. Now, if we know in advance that such animals are down in the cellar-rooms of our natures, we shall be careful to keep a lock and chain on the cellar-door, so that the unpleasant beasts may not come up and take possession of the parlor.

The workingmen are coming to a throne. They already hold the balance of power. Shakespeare pictures the king's son as wild 'Hal' in his youth. But when he heard that his father was dead and he was king, he discovered his unkingly and rowdy ways, made his boon companions keep their places, and sobered up. Responsibility and power should make men steady. It seems certain that the more orderly, gentlemanly and reasonable our workmen become, the more rapidly they will trust each other with political honors and powers. Why should we not expect to see the unions selecting bright young men from their number to educate? 'Knowledge is power.' Is it because it is feared they would lose sympathy with those who helped them to an education? Some would do this, but public opinion would generally hold them to their task. When so many who have educated themselves in colleges or elsewhere have voluntarily taken up the cause of labor, surely those who are helped to learn by the unions would not often prove traitors. This is a day of specialists, Modern life is too complex for all to know everything. Bees find it pays to fatten a queen bee for the common good. The hive gets it all back in time. Such men would be nominated and chosen for influential editorship and professorships. The story of the efforts of John Burns, of London, to secure a tolerable education is very pathetic. A man like that is worth a million a year to the workingmen of England. And such men are among us; young fellows who should not 'rise out of the ranks,' but rise in the ranks and rise others with them. I look forward to the day when every human being in America can be a gentlemen, a scholar, and a saint—in Charles Kingsley's phrase.

The militant method will not hasten that day. We live in an industrial and scientific age. I believe that the international unions of workingmen are to be the most powerful agents of causing the militant rulers of Europe to disband standing armies. Why should the laboring men, brothers all, work to support these great hosts of non-producers, and then stand up to shoot and kill each other for reasons which have nothing to do with their happiness? Just as soon as that notion gets through the head of the trades unions of Europe the vast armies that weigh on the necks of the people will melt as the morning mists before the sun. But the constant use of bitter words of our 'war' with the wages system simply keeps up the feelings of revenge and the temper of malice on which which the military spirit feeds. Suppose the employers *deserve* all the vituperation that is heaped upon them. Does it do us any good to pick up mud from the gutter to fling at them? Look at the hands of him who slings the mud!

I like to look forward to the time

when every man in our land can use good pure English, and manage arguments so strong that they do not need blasphemy to drive them home. It is a sign of scanty vocabulary to have to fill out sentences with words that cannot be spelled in decent print.

Aside from the loss of taste, character and other *personal* riches, it is a certain element of weakness in industrial strife. Divers cannot go to the sea bottom for treasures in a storm. The battle for a better economical condition demands steady nerves and a clear sky.

I write this from Boston and will add a few homely lines of Yankee dialect and common sense from Lowell's 'Bigelow Papers.'

"For grown-up folks like us 't would be a scandle,
When we get sarsed, to fly right off the handle.

* * *

'If we're agoin' to prove we *be* growed-up,
'T wont be by barkin' like a tarrier pup,
But turnin' to an' makin' things ez good
Ez wot we're ollers braggin' that we could;
We're bound to be good friends, an' so we'd oughter,
In spite of all *the fools both sides the water.*'

* * *

'She's riled jis' now—
Plain proof her cause aint strong,—
The one that first gits mad's 'most ollers wrong.'

'Folks never understand the folks they hate.'"

Co-operation for the Foundry Business as Proposed by Henry Cribben in '66.

IT IS refreshing in these days when we hear so much of the strife between capital and labor to note that all employers are not of a selfish, autocratic, grasping sort that our friends of the labor movement would like to paint them. A representative of THE FOUNDRY recently had the pleasure of a most entertaining conversation with Mr. Henry Cribben, of the Cribben & Sexton Company, Chicago, Ill., in the course of which that gentleman explained in detail the steps that led up to his going into the foundry business on his own account.

Mr. Cribben, as stated in the brief biographical sketch of that gentleman published in THE FOUNDRY August 10, was apprenticed to the molders' trade in Rochester, N. Y., when but a boy, where he worked at his trade until the breaking out of the war, 1862, and then being 29 years of age, joined the army, participating in many important engagements, and otherwise having a most eventful career while fighting for the maintenance of the Union, until the close of the war, 1865, when he exchanged the musket for the molders' rammer. In connection with this side of Mr. Cribben's career it might not be amiss to state that he was always an enthusiastic member of the molders' organizations, which at time were represented by the Iron Molders' Union, being one of the first presidents of the local union in Rochester, N. Y., and gave much of his energy to the affairs of both it and the trade assemblies of that city as well as to the interest of labor in general, and although noted somewhat for the independence of the position he frequently took on subjects that come to the attention of these organizations, Mr. Cribben was noted for his conservatism as well as a desire to have justice done to employers as well as to employees. If there was any one thing to which he was more opposed than another it was the matter of strikes, and whenever one was suggested he was almost invariably found to take a radical stand against it, unless it was an extreme case in which all fair means to avoid it had been exhausted. The panacea by which he proposed to remedy the evils that always follow in their line among molders was co-operation, something to which he had given a great deal of thought and attention, going so far as to produce figures with which to back up his arguments to show the position he took was not an impossible or impractical one.

On his return from the army, Union No. 12 elected him as a delegate to the convention of the Iron Molders' Union, which was held in old Tammany Hall, New York, early in January, 1866, and at that convention he, together with a few of the most progressive delegates took a strong and

united stand against this striking policy which the union had been maintaining for many years, and which, in fact, they have kept up very much ever since. His idea was to abolish strikes and not to resort to them under any circumstances unless actually compelled to do so in self-defense to resent the encroachments of unprincipled employers, and only then when every consistent method possible had been taken to avoid them. His idea was that when any question arose between a manufacturer and his molders an earnest attempt should be made to settle it either by a compromise or submitting the disputed points to arbitration, and no matter what the settlement might be it would prove in the end to be more profitable to all parties, the molders especially; for even if double the amount they were entitled to was secured temporarily through the medium of a strike, it was then and is yet the universal rule that when an employer is compelled by strike to pay 5 per cent more than his competitor he invariably got it back when the rush was over with interest by reducing prices 10 per cent for every 5 per cent advanced previously.

Mr. Cribben and his associates in the convention proposed a plan of co-operation something as follows: That they should raise in the National Union from $40,000 to $50,000 per annum by assessment, $20,000 or $25,000 to be raised the first six months, the balance the last six months of each year. This money was to be entrusted to a competent board of trustees where it could be invested to the best advantage in any city or town in the United States having a molders' union for a period of five years, provided that the molders in that city or town would raise a like sum to conduct the machine and jobbing foundry or stove foundry business, whichever might appear to be the most profitable. The trustees having the funds in charge were supposed to be selected for their honesty and ability to conduct such a business and were to be elected directly as trustees of a board of say five members, they to manage and control the business and be held responsible for its success or failure. At the expiration of five years or thereabouts, or as soon as the opportunity would permit, the union could sell the capital stock it had originally invested and transfer it to some other city or town where the workmen would agree to contribute an equal amount to the capital stock of other corporations. In the meantime five other plants would have been established, one each year in different sections, and at the expiration of the first five years there would have been by this method ten foundries in operation, and at the end of ten years by transferring the investment the first ten and establishing ten new corporations they would have thirty. At the end of 15 years, 60, at the end of 20 years 100 foundries would have been started, while in 25 years the number would have grown to 150 and in 30 years 210 foundries would have been started in various parts of the country, making jobbing machinery, stove work, and other needed articles, the capital and earnings of which would aggregate $25,000,000, of which the Molders' Union would own about $8,000,000, which would have cost them in taxation not over $1,200,000. This would have given them the control of the foundry business, taxation would have been abolished and a sort of revenue created that could have been used in any way they saw fit. Of course Mr. Cribben's idea was that the success of the plan hinged upon the selection of honorable and capable men, he having always contended that such existed in those days as well as now, and while some few mistakes might have been made, yet in the main the plan would have been successful.

When Mr. Cribben took the floor to set forth his scheme the central idea of which was that in thirty years every member of the union would become his own employer, he was laughed and hissed at, cries of "order, order" arose in all portions of the hall and pandemonium reigned until he was compelled to sit down, not being allowed even the opportunity of explaining his views. He was ably seconded in this matter by Simon F. Mann, of Troy, N. Y., and Wm. K. Burgess, of Providence, R. I., but they also were shut off by the majority of the convention, who were all imbued

with the striking idea which has been the main weapon of the union for over thirty years without having succeeded in accomplishing anything by its use in all that time.

The three principal advocates of co-operation at that meeting went to their respective homes, Mr. Mann, of Troy, N. Y., Mr. Burgess, of Providence, R. I., and Mr. Cribben, of Rochester, having previously agreed that as far as lay in their power they would put their theories into practice at the earliest opportunity. Mr. Mann with the aid of others organized the Co-operative Foundry Company, of Troy, N. Y., Mr. Burgess the Pawtucket Stove Company, of Pawtucket, R. I., and Mr. Cribben with Nicholas Brayer and others organized the Rochester Co-operative Foundry Company and was president of the company for five years, and with the aid of Mr. Burgess as treasurer and E. M. Peck, its well-known secretary, they built up a flourishing business from a very small beginning. The original capital stock was $25,000, one-half being paid in. This was in 1867, and this sum has grown until at the present time the capital is $200,000 and the surplus nearly $200,000 more, and in addition to this a handsome dividend has been declared for the stockholders for every one of the twenty-six years of its existence.

Mr. Cribben's sole earthly possessions at that time amounted to $800 which was all invested in the stock of the company, and he takes pride in pointing to the fact that the accumulations of the Rochester Co-operative Foundry Company and Cribben, Sexton & Co., of which Mr. Cribben is the active head, is the result of the labor of five men whose advantages in life were not in any manner superior to those of hundreds of molders at that time and in a measure far inferior to many of the same class at the present day. Many of our readers will probably think with the representatives of the Molders' Union that this Utopian scheme was thoroughly impracticable, but they will have a hard job to convince Mr. Cribben that he was wrong. No one can deny that a great reform in present methods is possible. Strikes have been given a thorough trial and all must concede that the result has been and is a disastrous one. What is true in the case of the molders of the country is true in other industrial branches as well, and it begins to look as if the only possible way to improve the prsent conditions would be through the medium of establishing closer relations between employers and employees rather than by permitting them to be widened through the medium of a conflict with the result that no one is ever entirely satisfied.

The C., H. & D. R. R. has issued a handsome panoramic view five feet long, of Chicago and the World's Fair, showing relative heights of the prominent buildings, etc. Also a handsome photographic album of the World's Fair buildings, either of which will be sent to any address, postpaid, on receipt of 10 cents in stamps. Address D. G. Edwards, general passenger agent World's Fair Route, 200 West Fourth st., Cincinnati, O.

NOTICE.

Advertisements inserted under this head for 25 cents a line each insertion.

WANTED—Loam Molder for heavy and light castings. Steady employment. Man must be sober and industrious. Address, stating experience, wages and references, I. F. & M. W'ks, Ivanhoe, Wythe Co., Va.

FOR SALE—Entire outfit of a first class Foundry and Machine Shop. Can see itemized list of what we have for sale in July number. All in first class condition and will almost give it away. Apply at once. Have to quit business owing to bad health. Address CHARLES GILBERT & SON, Albany, Mo.

WANTED—A position as foundry foreman, by a good loam and sand molder of steady habits; well up in first class work and methods; also a fair draughtsman. Address J. B., care of THE FOUNDRY.

WANTED—Superintendent to take charge of Foundry and Machine Works, doing mostly a foundry business. Must be capable of making contracts and know something of mechanical drawing. Good position for intelligent, energetic worker. Address, stating experience, wages and references, Ivanhoe Foundry and Machine Works, Ivanhoe, Wythe Co., Va.

FOUNDRY FOREMAN—is open for an engagement with parties, and whose sobriety and push will be appreciated. Understands mixing and melting of irons, and has had fifteen years experience in first class shops. A 1 references as to ability and reliability. Address "Push," care of THE FOUNDRY.

FOR SALE—Foundry and Machine Shop in a flourishing manufacturing city; a good farming country, small capital required. Address, WM. ENGBRING, Cedarburg, Wis.

Fuel and Charging Iron.

TO melt iron we must use fuel, and by the quality and class of fuel used the nature of the iron is more or less changed. Fuel that contains an unusual amount of sulphur will always make the iron hard, and also create a quantity of slag. A good method of testing fuel before using is to make a piece red hot and let it drop into a pail of water; then by practice it is possible to tell by the smell if it contains an unusual amount of sulphur. More trouble arises from using coke than coal, from the effects of the sulphur. Coal generally makes a purer and softer casting than coke. The percentage of fuel required to melt iron depends upon the height of tuyeres, pressure of blast and the quality and grade of iron used, as well as on the construction of the cupola, and the quality of the fuel. With coal or coke that is hard and clear less fuel is required than if it is soft and flaky. It requires more fuel to melt heavy iron than to melt light, and all pig iron requires more fuel than heavy scrap on account of the sand on the pigs. The stronger the blast the higher it is forced through the hot fuel before it becomes heated by its union with the fuel to its greatest temperature. When there is too much fuel for a bed we do not obtain the full benefit of the greatest point of temperature, as the iron is raised up above it, and since it melts at a decreased temperature it will not melt so fast. The same is true when the bed or fuel is lower than this point, and it is worse to have a low bed than a high one, for a low bed will cause dull iron. For the iron, when it is melted, is not obliged to drop through this greatest point of temperature, as iron does when melted upon the high bed, and further, the blast is colder in the low bed than in a high one. A workman, to do rapid or economical melting, should vary the height of his bed until he gets the iron hot enough and melting in the fastest time. He should also be careful in the management of the cupola, and particular in charging it. There are hardly two cupolas that will be found to have the same blast pressure. Attached to the last cupola is a water glass tube inserted in the wind box, with a cork on its end to prevent its breaking. A tube thus applied and filled with water will show in inches the pressure of the blast on the outside of the cupola; but to determine the inside pressure is a hard matter, for the inside diameter of the cupola and size of the tuyeres will always cause the pressure to vary. It is not always true when the pressure is high on the outside that it is the same on the inside. There will generally be the most pressure shown toward the latter end of a heat, and this caused by the tuyeres and fuel in front of them being choked more as the melting increases. The pressure of blasts used will be found to vary from eight to twenty inches. It requires a stronger blast to melt iron with coal than with coke. A weak blast will cause slow melting, and too strong a blast is apt to harden the iron and make slag, since its power will cut the clay and lining. Coke will melt iron faster than coal, and a cupola should melt longer with coal than with coke.

Coke and coal are often used together In sections where coal is the more expensive of the two, some foundries make a practice of filling up to the bottom of the tuyeres with coke and then making the balance of the bed all coal; and between the charges of iron they will throw in from one-fourth to one-third the amount of coal to that of coke, putting the coal in first, which is a good plan to adopt in coke sections when there is a very large heat required. Again, some will use all coke for the bed, and use a little coal between the charges, and others will have the order changed, using some coal on the bed and none between the charges. The height of fuel required to form the bed is lower for coal than coke; eighteen inches is about the average height for coke, and twelve inches for coal. Above the top of the tuyeres medium-sized fuel will give better results than large lumps of coal or coke. In melting, the small fuel makes a hotter and more compact fire. Imperfectly started fires have often caused many bad castings. Melters are often seen putting on a weak blast to make their fire burn up, so that they can commence charging up their iron, and often-

times melters cannot obtain dry kindling wood enough to properly start the fuel. But as a general thing the melter is to blame for the careless manner in which he goes about his work. Sometimes he will no take the pains to split up planks or timber as small as they should be; again, he will not have enough shavings to properly start his wood, or he may have a lot of short pieces of wood or blocks, and he will put them into his cupola in such a manner that a stranger would think he was trying to see how small a space he could pack them into; or again, he will not have wood enough to get the fuel properly lighted, or the fuel will only be burning on one side. To properly start a fire a good melter always tries to have a well-dried supply of kindlings on hand, and not wait until he wants to use it, and then take the first thing he comes across, even if it is wet. Kindling wood is effective when split up in long strips, and placed endways on a slant against the side of the cupola so as to protect the daubing as well as to catch fire better; and if small pieces are used let them be laid in the middle as open as possible, and on top of this kindling do not place any more fuel than is necessary to kindle additional fuel after the wood is all burnt out. Too much fuel at first has put many fires out, or made them burn poorly. If a fire does not kindle at first, there is often dull iron all through the heat in spite of all efforts to overcome it. The proper time to start a fire depends upon the class of fuel used. A hard coke or coal fire should be started sooner than a light or porous coke fire, for the hard fuel requires longer in order to get it started properly; but if the same time be given with softer fuel much of its life would be burnt out before the blast was put on. A fire should be started soon enough to get a cupola well heated up before any iron is charged. About the average time of starting fires is about two hours before the iron is charged, and the iron is better to be charged about one hour before the blast goes on, as by so doing it will get heated and melt faster. Upon the bed of fuel in a cupola is where iron is melted, and the height of this bed should be kept even with the melting point until the latter end of the heat, when it can be allowed to become lower. To keep up this bed there is fuel put between the charges of iron, and as they melt the fuel comes down on the sinking bed and raises it up to its proper point. By the amount of fuel charged between the charges of iron the character of the melting will be much regulated. To make even the regular melting throughout a heat the melter should know what percentage of fuel it requires to melt a hundred pounds of iron when charging, in order to replenish the consumption of fuel on the bed. To know the proper percentage to use, the melter must rely on experience as practiced in his own cupola.

The weight of iron to use in making charges generally depend upon the class of fuel used, and on the diameter of the cupola. With coal, charges need to be made larger than with coke. With fifty pounds of coke between five hundred pound charges of iron, in the size of the cupola shown, we have enough fuel to cover the iron over and separate one charge from another. But were the charges thus made with coal, the coal would not separate the charges, and the iron would appear as if it were one solid body, from the charging door down to the bed. So that in order to successfully melt iron with coal, we must have iron in the charges, in order to have the percentage of the coal spread over all the iron, and to be strong enough to distinctly separate the charges of iron. For a small 30" cupola, as shown, when coke is used, the charges of iron may be five hundred pounds each; but where coal is used the charges could be twelve hundred pounds of iron.

As to which requires the largest percentage of coke or coal to melt iron, there seems to be a great difference in practice and in opinions, but in many cases the quantity of the fuel is the regulator. As a general thing with melters that weigh their fuel, and sometimes change from one fuel to another, they use the same weight of coal as they do of coke. In melting a heat of four tons in the cupola shown, there should be twelve hundred pounds of coke used

to do it, or with coal the same weight of twelve hundred pounds would be used. Again, there are places where they will use a less percentage of coal that of coke, but as a general thing the percentage is a trifle larger of coal, since it takes a little more to make the bed the height required; for heavy heats the percentage of fuel should be larger than for light ones. The reason for not showing a cupola of larger diameter is because the writer believes there is more skill required to successfully melt iron in small cupolas than in a large one. For a large cupola will stand some improper handling, and show no very bad results, but any improper management in a small cupola will be sure to cause more or less trouble.

The weights of the charges in a cupola will permit much variation without bad results. Among half a dozen cupolas like the one shown, it would not be strange to see them charged with different weights of charges. In melting iron, the beginner must observe the following rules: If all coke is used, be sure it is about 18" above the top of the tuyeres, and burning evenly throughout. Upon this bed put the first charge of iron, which can be from five to fifteen hundred pounds; then, if there are any heavy pieces of iron to be melted, put them in the second charge, since if heavy pieces of iron are placed in the first charge, or upon the bed, there is danger they will sink to the level of the tuyeres, and from this cause a cupola will soon get choked; the weight of the second and of remaining charges should run from five up to ten hundred; and to be safe as to the amount of fuel, use fourteen pounds of coke to every hundred pounds of iron, if the charge is ten hundred of iron, and let one hundred and forty pounds of coke be used between them. If all coal be used, let its bed be about 12" above the tuyeres, and let the first charge range from fifteen to twenty-five hundred pounds, and the remainder of the charges range from ten hundred up to twenty hundred, the percentage of coal between the charges being about the same as that of coke. After two or three heats have run off, commence to use less fuel, and at the same time carefully change the weight of charges until the best results as regards economy of fuel and hot air are obtained. If the cupola is a larger one than shown, have the fuel the same height above the tuyeres, and use the same percentage of fuel between the charges, and also grade the charges of iron heavier in proportion as the cupola increases in diameter. Some make the charges the same weight through the heat, while others will make every other charge lighter. For the last charge or two of iron the percentage of fuel can be decreased, that is, if the bed is in no danger of getting down too near the tuyeres before the last charges are melted. There can be more economy in fuel practiced by having heavy charges than by light ones; but it is not every foundry that can work heavy charges, on account of their having different grades of iron to melt during the same heat.

In melting iron it is often a great benefit to use a flux so as to clean or separate the impurities from the iron, and at the same time make it more fluid. A great many foundries use limestone or oyster shells as a flux, while others will use fluor-spar. There are also some patent fluxes in the market, for which great merit is claimed. Among them is one patented by Edward Kirk, of Oswego, N. Y., the author of an instructive work on Founding of Metals.

The patentees of fluxes claim that the use of oyster shells or limestone destroys rather than benefits the iron, and their fluxes do the iron good by making it stronger and softer, while the use of too much limestone or oyster shells will make the iron hard; yet it answers the purpose intended in some cases, but oyster shells are better than limestone. In fluxing with either limestone or oyster shells, they should seldom be used until the latter part of a heat, as they will then help to clean out the cupola and make it drop better. Limestone should be broken up to egg size, and thrown among the iron; a riddleful being sufficient to flux a heat of three or four tons. A shovelful of oyster shells thrown in on the last charge of fuel is a good thing to help to clean out

a cupola, as it will glaze the lining and make the cinders easier to put out. FLUOR-SPAR can be used throughout a whole heat, as it has not the hardening qualities which the lime or shells possess, and is a good flux for general use. The melting point in a cupola is that portion of the lining which is burned out more than the rest, and also that point at which from the highest temperature there is the most melting done. The melting point or portion of a cupola ranges from 6 inches to 2 to 3 feet above the tuyeres, and the iron is sometimes melted in the lowest portion, as well as at the middle or highest point. As the height at which iron may melt is often sufficient to contain two or three small charges of iron and fuel, it is not a hard matter to see the cause of different grades of iron getting mixed.

There will be more damage done at this point by blowing, or having the blast on, when the iron is all melted, than a dozen heats would do if the bottom is dropped, and having, according to the size of the cupola, from two up to ten hundred pounds of iron in the cupola.

Whenever the blast goes in a cupola, it cools off the fuel, and the melting iron, dropping down from above, falls upon its lifeless fuel and is soon chilled by the direct force of the cold blast. This state of affairs, from the beginning to the end, keeps all the time getting worse in the large cupola as well as in the small one. In the large cupola, however, there is more chance of the blast losing its force and coldness before it reaches the centre, so that the fuel is given a better chance for thorough combustion. This permits of running a large cupola longer than a small one can be run.

As soon as a cupola begins to get black and cold at the tuyeres, we say it is choking. This is true; and not only is the entrance being choked, but in the course of time the whole surface parallel with the tuyeres will be in the same condition, and as it increases the slower will be the melting, until no melting can be done. We then drop the bottom and have a good time trying to get a hole through the choked cupola.

There are other things besides blast that help to choke a cupola, such as improper charging, dirty iron and fuel, etc.; but, allowing that everything is done right, the cold blast will of itself accomplish it in the course of time.

Whenever a tuyere is getting dark or choked, it should be opened, the cold black fuel and chilled iron be driven with a bar towards the center of the hot fuel; this will reheat the cold fuel and iron. It is occasionally a good plan to stop one of the tuyeres at a time with clay, and this will prevent the cold blast from getting in at this point, and allow the fuel to become rekindled after a few minutes; then the tuyere is reopened and another one stopped up, and going thus all around to every tuyere. For very large heats this operation might require to be repeated several times. In charging a cupola it should be kept full of iron until it is all in, and at the latter end, should there be any serious signs of its becoming choked, it is the best plan to drop the bottom if possible. In order to have cupolas work well, cleanness in their management is of the utmost importance. The fuel should be free from all dust and dirt, and the iron have as little sand on it as possible. To look on a cupola staging is proof of the working of a cupola; if everything appears in a dirty and disorderly state, it is in most cases safe to conclude that the melting is not done in a scientific manner. Whatever knowledge there is on the subject of melting iron has for the most part been obtained from individual investigation and practice; and that man is the best melter who has studied the cause and effect, and reached a careful and well-founded conclusion in everything that has to be done from the time he begins to pick out his cupola until he drops the bottom.

The Ohio Sand Company, of Conneaut, O., has recently purchased some extensive sand pits adjacent to those they already own, and are talking of putting in additional switching facilities and some large sheds for storing purposes.

By all means send me THE FOUNDRY.

I would not like to be without it at all. The publication is one that every man working in the foundry should have. My best wishes for its prosperity, trusting it may keep on increasing in size and circulation. Yours respectfully, GEORGE IMLAY.

Jno. A. Penton, Esq.,

Dear Sir: You will find inclosed post office order for $1 which is intended for my subscription for THE FOUNDRY for the ensuing year.

I can assure you that I have been more than pleased with the paper during the past twelve months, and I shall have great pleasure in recommending it to my friends. I think I may be able to assist you a little in the matter. With best wishes for the future success of THE FOUNDRY, I remain, yours truly,

GEORGE ASHBURNER.
887 Prospect avenue,
Black Rock, Buffalo, N. Y.

I have been taking THE FOUNDRY for the past year, and am much pleased with it, as it is just what is needed for anyone engaged in the foundry business. Wishing you success, I am yours, etc.,

J. B. MACMEEKIN.
Sackville, N. B.

H. G. Boughton, dealer in molding sands at Akron, O., informs us that he has 3,000 tons stored in sheds convenient to the railroad track, with which to fill winter orders. He seems to appreciate the fact that owing to business depression orders have not been as heavy as they otherwise would have been, but expects that the deficiency will have to be remedied later on, and is getting ready to meet it.

The Athens (Tenn.) Foundry and Machine Shops are now running with a full force and are so pressed with orders that additional help has been employed.

The New Home Sewing Machine Co., at Orange, Mass., have placed the contract with the Berlin Iron Bridge Co., of East Berlin, Conn., for a new foundry and tumbling room. The building will be entirely of iron, 45 feet in width and 120 feet in length.

What He Would Do.

"WHAT a lovely boy!" she exclaimed, bending an enraptured gaze upon a pretty 5-year-old playing on the green turf of Riverside.

The whole party paused and petted him, and a little pampered poodle nosed the youngster jealously. And the lad with his golden curls, blue eyes and aristocratic features was certainly a pretty sight. He was dressed in a velvet Eton jacket and cocked hat with an ostrich feather in it, and his fond mamma, sitting on the nearest bench, drank in the glances of admiration and words of praise as sweet incense to her soul.

"Oh, you dear child!" cried another of the ladies.

"Come away, Fido. He won't bite you, dear." Still the lad looked on the pudgy dog doubtfully.

"What would you do if you had a nice little dog like that?" inquired the lady at the end of the ribbon.

"I—I'd knock the everlastin' stuffin' out of him!" promptly responded the little chap. Whereat his fond mamma turned crimson.

"Come on, Fido," said the owner of the dog stiffly. But the rest of the party looked as if in hearty approval of this sentiment, especially the solemn young man who was with them.—*The Inland Printer.*

Mackintosh, Hemphill & Co., Pittsburg, are taking advantage of slackness of work in their foundry to make some decided improvements in their equipment. Electric cranes are being substituted for the old jib cranes, and other improvements may be made, the work to require two or three months.

The Portland Foundry and Machine Works, Portland, Me., have purchased the foundry stock of the Dirigo Heater Company, of that city. The Dirigo Heater Company have given up foundry work as a specialty and will confine themselves solely to turning out their special branch in the heating line.

Where are You At?

Business—like a slaughter house
No matter where you're at,
Is pretty full of grizzle,
With a precious little fat;
A little lean
And lots of bones,
And some of this
And that.
A feast one day,
A famine next,
No matter where you're at.

The ups and downs are many,
With a surplus of the downs;
They come to one and all of us,
In cities or in towns.
We're up today,
Tomorrow down,
In palace
Well as flat,
And the question
That comes home to all
Is this, Where are you at?

Now you are at in business
What requires nerve and brains,
To bring about the best results
And show the proper gains;
You get there,
But your own reward
Was neither this
Nor that,
You worked for
Everybody else,
And this (o) is where you're at.

J. Edward Cowles in *Metal.*

A Prehistoric Blast Furnace.

PROF. FLINDERS PETRIE, the distinguished explorer of biblical lands, when excavating and investigating in Southern Palestine a few years ago convinced himself that in a remarkable mound called Tel-El-Hesy would be found the remains of what was one of the strongest places in that country down to the invasions of Sennacherib and Nebuchadnezzar. The explorations, since carried out on the spot were announced at a recent meeting of the Palestine Exploration Fund in London as having fully verified this forecast. The mound is found to be composed of no fewer than eight successive towns formed on the ruins of one another, the uppermost dating about 500 B. C. and the lowest, or earliest going back to 1500 B. C., the time of the great Egyptian conquests in Palestine. Amid all the evidence discovered by F. J. Bliss of the American College at Beirut, Syria, who has had charge of the excavations, of the civilizations of that remote age—wine presses, treacle presses, alkali burnings and innumerable other things—by far the most curious is the disclosure of an iron blast furnace, so arranged as to give strong evidence of being intended to heat in its descent a blast of outside air forced through passages before entering the chamber at the level where tuyeres are usually found. "If my theory be correct," says Mr. Bliss, "we find 1400 years before Christ the use of the hot air blast instead of cold air, which is called a modern improvement in iron manufacture due to Neilson, and patented in 1828."

THE FOUNDRYMENS' ASSOCIATION

THERE was a smaller attendance than usual at the regular monthly meeting of the Foundrymen's Association at the Manufacturers' Club in Philadelphia, Wednesday evening, September 6, and yet considerable business of importance was transacted. The decrease in attendance was probably due—as Secretary Evans laughingly put it—to the failure of the Senate to pass the Silver Repeal bill. This explanation seemed to meet the approval of Mr. Francis Schumann, who presided, and of the other members. Those present included:

Robert Register, of Register & Sons, Baltimore, Md.

Mr. Stirling, of the Harlan-Hollingsworth Co., Wilmington, Del.

Stanley G. Flagg, of S. G. Flagg & Co., Philadelphia.

Mr. Riehle of Riehle Bros., Phila.

E. E. Brown, of E. E. Brown & Co., Philadelphia.

Mr. Van Sant, of Morris Tasker & Co., Philadelphia.

Mr. Glover, of Glover Bros., Frankford, Philadelphia.

Francis Schumann, of the Tacony Iron and Metal Co., Philadelphia.

Thomas Devlin, of Thomas Devlin & Co., Philadelphia.

Mr. Rankin of the Abraham Cox Stove Co., Philadelphia.

Walter Wood of R. D. Wood & Co., Philadelphia.

P. D. Wanner, of the Mellert Foundry & Machine Co., Reading. Pa.

Dr. Edward Kirk, of Philadelphia.

Secretary Evans, after the reading of the minutes, called for reports from the various committees. Robert Register, of Baltimore, of the committee on Soil Pipe, announcing that there was a movement on foot for a meeting of all soil pipe manufacturers in New York City within a month, to discuss ways and means for the betterment of that branch of the iron industry. From 30 to 40 per cent. of the soil pipe foundries in the country, principally in the West, Mr. Register said, had closed on account of bad times.

E. E. Brown, of the Committee on Sash Weights, announced that there was plenty of orders and that every one was busy in that branch. The outlook, he said, was very encouraging.

P. D. Wanner, of the Committee on Cast Iron Pipe, stated that pipe was being sold at cost prices, and in some localities where the pipe foundries were very numerous, even below cost. The demand for cast iron pipe, this season, is unprecedented, and the capacity for manufacturing the pipe was way beyond the demand. "I do not anticipate much glory or profit," conclued Mr. Wanner, "for the pipe manufacturers for some time to come."

When Secretary Evans announced for the association's consideration the question of procuring determinations of metal specimens by chemists, a considerable discussion ensued. "The chemist," said Mr. Evans, "has become anecessary adjunt of the iron business. The question as to whether it is proper for this association to employ a chemist as a regular salary, and equip a laboratory for him, is one that should be thoroughly discussed. How are our determinations to be made ? Mr. Molin, of New York, who holds that no foundry can be run nowadays without the use of chemistry, states that it would cost $2,500 to properly equip a laboratory. It seems to me not at all likely, if we employ a chemist, that all the members of the association would avail themselves of his services at so much per determination. I have been in correspondence with Drexel Instiute, and have received a very courteous letter from President MacAlister, who writes that that institute will soon equip a laboratory and be in a position to make determination for foundrymen at little or no cost to them. I have also a letter from Prof. H. W. Spangler, of the University of Pennsylvania. He says he thinks it will be possible for us to make the arrangements desired with the university. He fully recognizes the necessity of getting into closer contact with an organization such as ours, and assures us that he will do all in his power to have our work done at the university. He will confer with the Board of Trustees on the matter, and give us a definite answer very shortly. It would be well, I think, to secure one or both of these institutions rather than hire a chemist and equip a laboratory."

Mr. Flagg approved the idea so far as the University of Pennsylvania was concerned, and the other members seemed to echo his sentiments. It was decided to await further communications from both institutions before taking any decisive steps in the matter.

This subject disposed of, the more important one of increasing the membership of the association and widening its field was taken up for discussion. Secretary Evans read a letter from Thomas D. West, of Sharpsville, Pa., who approved of co-operation between this association and the Western Foundrymen's Association and a division of territory from which to draw members.

The question of enlisting New York foundrymen had been discussed some time before, and it had been suggested that the aesociation hold a meeting in that city with a view to getting members there. In reply to a letter from Mr. Evans, Secretary F. R. Hutton, of New York, of the American Society of Mechanical Engineers, wrote that he heartily approved of the interest and support of the Foundrymen's Association for his society, and would be glad to have the former become an adjunct of the latter.

He offered the association the freedom of the headquarters of the A. S. M. E. in New York for any night they might choose.

After reading Mr. Hutton's letter, Secretary Evans said: "It is our purpose to send a special letter to every foundryman within 100 miles of Philadelphia, and by that means improve the membership and add to the general interest of the association. Now, as to the New York men, the question is would it be better for us to go over to them or ask them to come over to us?" Mr. Warren approved of having a Western and an Eastern association, with Pittsburg as the dividing line. He believed that by spreading beyond two associations much interest would be lost. As to the method to be adopted to induce the New York foundrymen to join the association, he did not think it would be advisable for the members to go on a proselyting tour to that city. "It would not be advisable," he said, "for New Yorkers are very much averse to listening to advise or suggestions from outsiders, and Philadelphians in particular. Let them come over here and we will talk to them." It was finally decided to write a letter of thanks to Secretary Hutton for his proffer of the hall, and to hold the matter in abeyance for awhile.

A communication from John E. Fry, of Pittsburg, upon the analysis of pig iron, was read and placed on file without comment.

Mr. Wanner suggested that the time for the payment of wages would form an interesting subject for discussion at some future meeting. "It would be well," he said, "to meet the men and talk to them; to be square and honest with them, for that is the only way to establish amicable relations between employer and workmen," Mr. Wanner then offered a motion that the executive committee be authorized to consider the matter and report upon it at the next meeting. This met with considerable opposition on the part of the other members, however, and the motion finally fell through.

The attention of the meeting was then called to Section 24 of the Improved Building Laws of Philadelphia for 1893, which relates to structural iron work. The members disapproved of the section, which reads as follows:

"Sec. 24. All iron beams or girders used to span openings over eight feet in width and not exceeding twenty feet, upon which a wall rests, shall have a bearing of at least nine inches at each end by the thickness of the wall supported, and for every additional foot of span over and above the said twelve feet, if the supporters are of iron or solid cut stone, the bearings shall be increased half an inch at each end; but if supported at the ends by walls or piers built of brick or stone, and when so supported at the ends by brick walls or piers, shall rest upon a cut granite, blue or other stone blocks of equal strength not less than seven and a half inches thick by the full size of the bearing, and when the opening is more than 12 feet, the plate or stone shall be proportionately increased, and all iron girders or beams used in any building shall be throughout not less in width than the thickness of the wall to be supported."

After some discussion the matter was referred to the executive committee, with the suggestion of the adoption of a standard formula of weights and capacities. The meeting then adjourned.

The Western Foundrymen's Association.

THE regular monthly meeting of the Western Foundrymen's Association was held on Wednesday evening, September 20, at rooms 702, 703 Temple Court Building, Chicago. A. T. Whitney was elected temporary chairman in the absence of the vice-president. The secretary read the following report of the Executive Committee on the subject of securing a chemist for the association:

"In the opinion of the Executive Committee it is advisable for the association not to accept any of the propositions presented to it, but rather to make further investigations with a view to establishing their own laboratory and securing the entire services of a chemist." The report was accepted and ordered filed.

The next business was the election of a president to fill the vacancy caused by the resignation of C. A. Plamondon. The names of George M. Sargent of the Sargent Company, Chicago, and of Charles Allis of the E. P. Allis Company, Milwaukee, had been put in nomination at a previous meeting. The secretary read a letter from Mr. Allis, declining the nomination, and a resolution was unanimously adopted empowering the secretary to cast the vote of the association for Mr. Sargent. This was done, and Mr. Vrooman and Mr. Griffin were appointed a committee to escort Mr. Sargent to the chair. Mr. Sargent made an appropriate speech, thanking the members for the honor conferred upon him, and saying he would do his utmost to further the interests of the association.

The next order of business was the election of new members, and the application of the Joliet Stove Works of Joliet, Ill., was presented, and they were elected to membership.

The secretary reported as the only unfinished business the question of securing a chemist for the association.

Mr. Vrooman suggested that the association confer with Mr. Ferguson of Fraser & Chalmers, as they had spent a large amount of money in fixing up a laboratory, and after trying it for a while had concluded that there was no use in having a chemist.

A letter from the Kilbourne & Jacobs Manufacturing Company, Columbus, O., was read, asking as to what would be required of a chemist for the association and suggesting their chemist for the position. The secretary also reported having heard from the Armour Institute that they were ready to do any work that was offered to them by members of the association. Mr. Moore of the Joliet Stove Company, said: "It would seem to me that in order to produce practical results a laboratory should be had of the most practical kind and with a competent chemist at its head. The one thing that attracted me to the Association of Foundrymen was the probability of forming a common laboratory. We have, in common with some other foundrymen, begun to learn that foundry iron is different from mill iron, simply because it has more silicon in it, and we have learned a few other things. The thing that we know best is that we know very little. We are anxious to get laboratory determinations at something approximating their actual cost. We cannot run a laboratory ourselves; it would cost more than the business accruing from it would pay. We have had some analyses made, taking them as it were from parties with whom we are dealing. I think we are ready to co-operate with those who wish to start a laboratory."

Mr. Sargent: "It is a question for deep consideration. It seems to me that it should be looked into very carefully to see whether the association itself can establish and sustain a plant of this kind."

Mr. Griffin: "I think it would be a very good idea if the secretary would make an investigation among the members of the association as to whether they are willing to co-operate, and if so to what extent. We must have some basis. We must get the price of the laboratory and chemist."

It was moved and supported that the matter be referred to the secretary.

The following amendment to the by-laws was presented by Mr. Sargent, to be acted upon at the next regular meeting:

"*Article VIII.*—All proposals for membership shall be made in open meeting by any member. The application, with the indorsement of the member making the proposition, shall be voted upon by the members present, a majority electing."

It having been suggested that the October meeting be held at the World's Fair grounds, a discussion took place as to the advisability of this plan. It was finally decided to leave the matter to the discretion of the president and secretary, and by resolution they were empowered to call the next meeting on Thursday, October 19, at the rooms of the Associated Engineering Societies, in the fair grounds, if the details could be arranged and sufficient encouragement as to the number who will attend be received from the members of the association. A paper by Thos. D. West, en-

titled "A Plan for the Rapid Development of the Foundrymen's Association," was then read and discussed by those present. Mr. West suggested several plans to add to the popularity of the association, chief among them being the advisability of having it hold its meetings in different cities, thus creating an interest in its affairs among foundrymen over a wide extent of territory. A discussion then took place on the merits of the plan outlined, and action on the suggestions was deferred until the October meeting.

The Relation of a Foreman to His Men.

BY A. MOLDER.

IN reading the valuable article in the last issue of THE FOUNDRY on the relation of the workman to his foreman. I was tempted to take the other side of the question and show where much good could be accomplished by a closer relationship between the foreman and his workmen, and to show how such a bond of sympathy and mutual help could be established, It has been my experience and I believe of all molders who have traveled and worked in various places, that a foreman who has the reputation of being a good mechanic and a fair minded man will have no trouble in gathering and keeping a force of good mechanics, who not only respect him, but do their best to render him efficient service by turning out good work. On the other hand, I have noticed that a man who has the reputation of being a "botch," or a "driver" generally has a force of incompetents around him, men who are compelled to swallow his abuse and petty tyranny because incapable of doing first class work. This is not always true, of course, but the exceptions serve to prove the rule. There is no doubt but that a foremanship of any shop, large or small, is not an enviable position. The foreman is continually in the position of the man who stands between the devil and the deep sea. He must endeavor to satisfy the firm by turning out a large amount of work of good quality, but in doing this he must be careful not to antagonize the men and give them the idea that he is a "driver." If he succeeds in creating this impression among the men he may look out for more or less trouble. On the other hand, if the firm imagines he is too lenient, he is likely to be called to task or replaced. Many firms make this matter worse by employing men to fill these positions who are notoriously incompetent and whose only qualifications may be that they are known as "hustlers." These "hustlers" invariably merit and receive the contempt of the men under them and they are unable either to get out the full quota of work or get good work.

I care not how low a man may be in the scale of intelligence there is a something imbedded in his nature which teaches him that he is a man, and the equal of other men in some respect. He will always appreciate any show of consideration for his thougths and ideas on the subject of the work by the foreman and is willing to show his appreciation by doing more and better work than if his ideas are treated with contempt. If, when a man does good work and tries to serve the interest of his employer, he feels his efforts are appreciated, a bond of sympathy and good fellowship is created between that man and his foreman and he will try to merit that good opinion. But, if he is treated like a machine and no consideration shown for his ideas he will generally do his work like a machine, without a thought or care except to turn out a certian amount work and in such shape as to pass muster, so as to enable him to hold his job. If a foreman arbitrarily says that a certain amount of work must be turned out each day by every man, no matter who, or under what disadvantages the work is to be made, he generally succeeds in driving away from him men of intelligence and independence, and I want to make the point here, that men of independence are also the most intelligent and the best workmen. He may get out the full amount of work, but will it be first class? Any molder who has traveled, and who among the journeymen have not, at some perion or another, has a fund of anecdote of the various places in which he has worked and the wonderfully large castings he has made

or seen, but the chief topic for discussion when molders congregate is the foreman they have worked for, and many are the laughable stories they tell of the incompetence or "bull-headedness" of the foreman. Now, while it is nice enough to tell the tales and laugh over the antics of these foremen, it is not a very pleasant thing to work for them and men who have any respect for themselves generally give them a wide berth.

It was my fortune, or rather my misfortune, to work in a large shop in——— a number of years ago, the foreman of which was known as a bully, and I may say that he was the most brutal and foul mouthed man I ever had the misfortune to work for. I will not name the city because the man is still alive and he would be recognized by the description, and I have no wish to call general attention to him, as there are hundreds of his like throughout the country. I had only been in the shop a few days when I made up my mind that my stay in that shop would only be long enough to enable me to make a stake and get out. The apprentices, and I may say a majority of the men, were in deadly fear of his brutal tongue and rather than allow him to see a piece of scrap work they would often hide it in the floor. I discovered this fact by digging in the back end of my floor and finding nearly a ton of "stiffs" as the men called them, which had been planted at various times. This pratice was so general that I have no hesitation in saying that there was at least fifty tons of bad castings buried in the floor of that shop. In his lordly and autocratic way he would walk up to a man and, throwing a pattern in the sand, order him to make a certain number in a certain time. With the threat of instant dismissal confronting him if his work is bad, or if he does not finish his stint in the time alloted, how can a man be expected to do a days work and make it good? The right to think and reason for himself is taken from him and the man becomes a machine, to work when the steam is on and to "loaf" when he gets a chance. Such a system makes a workman an incompetent and a coward.

It happened one day that I was making a job, two of which constituted a days work, in closing the second flask the side broke in the hands of the men and the piece was ruined. I told the foreman of the fact and was treated to a string of invectives which made my ears tingle. I told him that either the flask must be repaired or a new one made for the job and he informed me he would attend to that. The next day, after finishing the first flask, I went to the carpenter shop expecting to find my flask repaired, but was told by the carpenter that he had received no orders to repair it and had no time to do so. I then went to the foreman and stated the case, asking him if he had something else for me to do. He turned on me like fury. "What the——and—— —— —— do you want with another job, when you have a job on your floor? I reminded him of the broken flask and told him in forcible language that I did not propose to spend two or three hours trying to repair that flask and then make another piece in it. "Well then," said he, "go to your floor —— —— —— and I'll bring you a job." And he did bring me a job. In a few minutes he returned with the pattern of a sixteen foot buck bar and ordered me to make four that afternoon, saying, that I would find flasks in the yard. The absurbity of one man trying to ram up four flask 18'x12'x12' in two hours made me laugh. He wanted to know what I was laughing about and I told him that it would be impossible for me or any other man to make those four pieces in flasks that afternoon, but if he would give me help I would make them in open sand. He demurred at this, but finally agreed to enquire in the office if they would be accepted if made in open sand. Returning he told, me to go ahead, but warned me that if they were not perfectly straight and clear he would fire me. Another time after working a week on heavy work, my floor full of course sand and impregnated with heavy facing, he came and threw down the pattern of a sleve, 14' in diameter, 2" long and about three-eights of an inch thick, ordering me to make a certain number and warning me that if they were not good I need not show up for work in the morning.

Three days work had already been

lost on this piece by different men. I informed him of the condition of my heap and told him it was impossible to make the piece in that sand. His rejoinder was, to make it or get out of the shop. I took, what I thought the wisest course under the circumstances, and got out of the shop. I have heard this man stand up to molders who were his superiors in every way, both as mechanics and men, and taunt them until they were forced to reply, when he would order them out of the shop. If a man happened to lose a piece of work, which by the way happened very frequently in that shop he would say: "you —— —— ——of a ——, who in in —— told you you was a molder?" or," —— —— you where in —— did you learn the trade?" This was the style of doing work in that shop and can any one wonder that the firm failed for a large amount within a few years after this man was placed in the position of foreman. Now, I have given you but one instance of an incompetent and a brute being placed in the position of foreman. I have run across many of them, but none so pronounced as this one.

There are various other kinds of foreman, besides the brute and the driver, who are obnoxious to the men. The one that I have always had the greatest objection to working for is the one who gives you a strange pattern and orders you to make a certain number in a certain time, without a thought or a suggestion of where the flasks are to be found to make it in. If you call his attention to the fact that you can not find flasks to fit, you are told to use any thing that you can get hold of. But, no matter what inconvenience a man may be put to in finding a flask, or flasks, to answer his purpose the output of good castings is what determines his worth to the company, and the man is generally told in no gentle terms that he is not doing enough to earn his money. Then there is the foreman who is so afraid of incurring any expense outside of his own department, that the men whom he employs must be carpenters, pattern-makers and laborers as well as molders. Such a foreman is a very expensive one to the company which employs him. The company which pays a skilled mechanic to do the work of a common laborer, or expects one mechanic to do the work which can be better and more expeditiously done by a mechanic of another trade, will invariably come out at the small end of the horn and the complaint will continually arise from the office, that "the foundry is losing more money than the machine shop can make."

I believe there has been a gradual revolutionary process at work in the foundry in the past few years which has done much to minimize the difficulties and disadvantages with which molders have had to contend. As evidence of this we have better shops, built with an idea to light and ventilation, so essential in a foundry. We have better cupolas; more and better appliances for turning out the work and lastly, more attention is paid to mechanical and executive ability in selecting a foreman and fewer "bullies" and "drivers" are being placed in these positions. The latter change will do almost as much as the improvements in machinery to keep a crew of good mechanics who can and will turn out good work and make the foundry the money earner of the plant.

Men instinctively respect other men who are their superiors, both as workmen and as men, and the foreman who can command the respect of his men will always be successful in running his shop on a paying basis and have very few labor troubles to contend with.

Although the month of August was noted for one of the dullest months for many years in all lines of business, the Huyett & Smith Manufacturing Company, Detroit, Mich., can have no great cause to complain, they have sold during that month a great many of their celebrated Hot Blast Apparatus, for heating and drying purposes, to a large number of concerns among which are the following: — Central High School, Detroit, Mich., (3) heating; Royston Straw Works Co., Grand Rapids, Mich., drying; Chicago Fire Proof Covering Co., Chicago, Ill., drying; Montreal Cotton Co., Valleyfield, P. Q., heating; Boyertown Burial Case Co., Boyertown,

Pa., (2) heating and drying; Methodist Episcopal Church, Kingston, N. Y., heating; St. Joseph Episcopal Church, Detroit, Mich., heating; Herman Behr & Co., New York, N. Y., drying; Standard Stamping Co., St. Louis, Mo., heating; Chr. Kulken, Geestemunde, Germany, drying; Diamond Match Co., Detroit, Mich., heating. They also report a very good trade in Ventilating Fans with Electric Motors attached, Forge and Pressure Blowers, Exhaust Fans, Dust Separators, etc., and are prepared to answer all communications and to fill all orders promptly. Some eight months ago this company shipped to Manchester, England, the largest Hot Blast Dry Kiln, for timber, in Great Britain, the success of which is attested by the receipt of an order for a duplicate plant, through the same source and for a similar industry in Germany; shipment of the latter was made this week. They have recently opened an office in London with an experienced manager in charge, this step being necessary in order to properly look after their growing business, both in England and on the Continent.

Casting Great Statues.

STIGLMAYER, a German goldsmith in the first part of this century, having an ambition to attempt larger works than any he had accomplished, went to Naples in order to see the casting of Canova's statue of Charles III, but was denied the sight of certain secret technical processes. Stiglmayer found them out for himself nevertheless, and as soon as he went home made his first experiment on a statuette of Venus. Many delays occurred, and the excitement increased as the end drew near. By some mistake one of his assistants poured his molten metal into the airhole. Then the casting came to a standstill.

"The crowd of lookers on," writes the poor founder in his diary, "stood first dump about me and then slipped out one by one and left me with my pain."

In a month the second casting was begun and failed. With unbroken courage he began the third cast, and on Christmas eve the metal was again poured in. It ran into the mold and spurted joyfully out at the air hole.

"Our joy knew no bounds," he declares. "We raised a loud cry of joy and embraced and kissed each other. Pasquale, the helper, kissed the head of Phidias coming out of the broken form and burned his mouth, for it had not had time to cool."—*Youth's Companion.*

Stories of Great Luck.

CAPTAIN BEN. FERGUSON, collector on the ferryboat Hite, is always reminiscent. The other day the captain said to me: "You seldom hear of a man making $90,000 in one night in these days, but I know of such an instance. Mr. Coleman, who ran a foundry on Washington street, near Broak, did it. In relating it to me he exhibited no delight whatever. His words were: "Captain, I made $90,000 last night; went to bed early and slept soundly. You know the price of iron went up, and fortunately I had enough on hand, which I purchased at a low figure, to net me a fortune." As Captain Ferguson concluded the story he told another of how Dennis Long made $200,000 because the price of iron dropped out sight. It was just at a time when Mr. Long had failed in business and told Captain Ferguson that he was $400,000 in debt.

"Well," said the captain, "Dennis Long went up to Indianapolis to bid on the construction of the city waterworks. There was but one other bidder, and Mr. Long was awarded the contract. Not long afterwards iron began fluctuating, and Long's estimate having been made on the basis that iron would advance still more in price, it already being high at the time, he of course found that as it decreased he was reaping a golden harvest. Well, iron went down and down. When it stopped, it was worth hardly anything. Mr. Long, as I said, made $200,000 by this, and he's been making money ever since."—*Louisville Courier-Journal.*

A Lesson.

Sunday School Teacher—What lesson did you learn from George Washington's life?

Scholar (in the last row)—It's always better to climb the tree when you want to steal cherries instead of chopping it down and getting found out.—*Brooklyn Eagle.*

Pharmaceutical Item.

"Have you the 'Fatal Mistake?'" asked a girl as she stepped in a book store.

"No Miss," replied the clerk, "you will find that at the drug store."

"The drug store," said the maid in astonishment.

"Yes, that is where they give you morphine for quinine."—*Texas Siftings.*